VinylPlus® Webinar

Additive Sustainability Footprint Methodology

9 DECEMBER
9:30 – 12:30

Building towards sustainable PVC

STARTING SOON

Opening

Vincent Stone

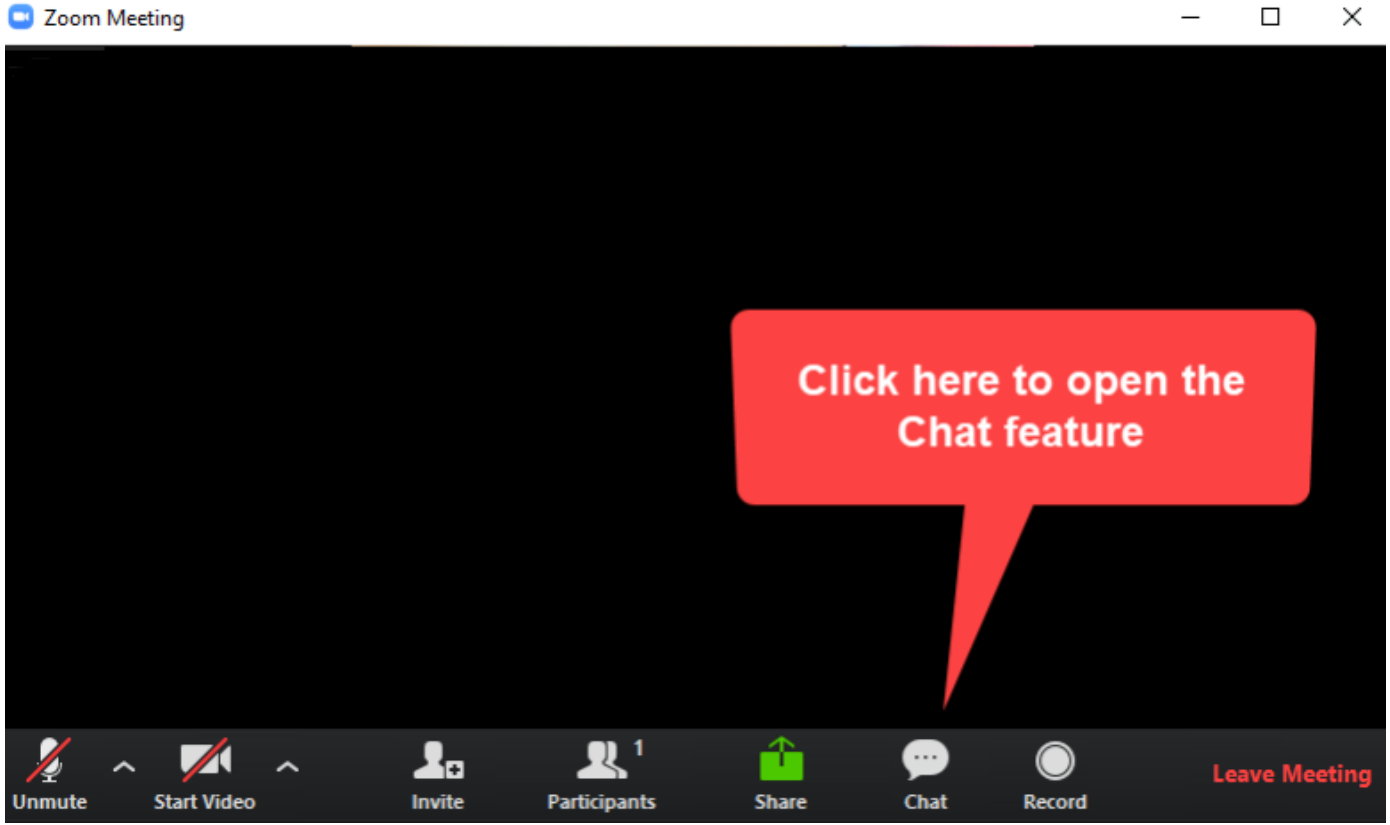
Technical & Environmental Affairs
Senior Manager, VinylPlus®

Additive Sustainability Footprint Methodology

Housekeeping

- Today we are expecting almost 190 participants
- For practical reasons, all participants will be muted and cameras will be switched off
- Any question and/or comment: **ONLY USE THE CHAT BOX**
- 2/3 questions will be addressed after each presentation (if time allows)
- A Q&A session will be held at the end of the webinar (if time allows)
- **Webinar is recorded**

Where to find the Chat Box



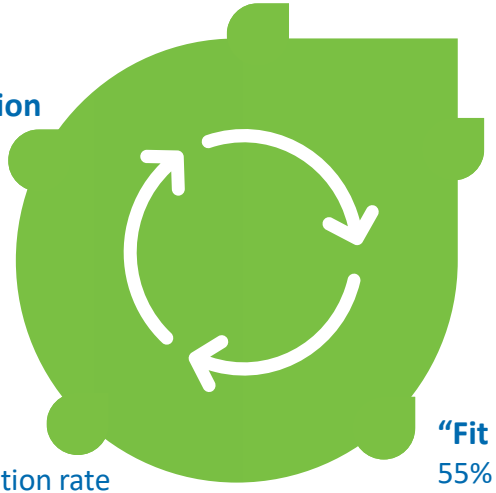
Setting the Scene

The EU Green Deal: *'To make Europe climate neutral in 2050'*

Key Elements for PVC

Circular Economy Action Plan (CEAP)
Recycling rates, market for secondary raw materials, mandatory recycled content, waste reduction measures (e.g. packaging, construction, vehicles)

Revision of Construction Products Regulation
Harmonised standards and technical specifications to align with the CEAP



Chemical Strategy for Sustainability
Long list of measures potentially impacting industry (e.g. new rules for classification, opening REACH, more preventing measures enabling bans of substances)

Renovation Wave
To double the annual renovation rate of buildings in the EU including energy efficiency

"Fit for 55" Package
55% reduction in GHG emissions by 2030. Focus on energy performance of buildings, renewable energy, ETS (carbon market).

Challenges and Opportunities for the PVC Industry

OPPORTUNITIES

- Strong policy focus on long lifespan and recyclability of materials (Renovation wave)
- Demand for circular construction materials
- EU green public procurement rules, circular standards (VinylPlus® Product Label)
- High ambition for energy efficient buildings

CHALLENGES

- Sustainability requirements at design phase for chemicals and articles; recycled content
- Legacy substances in material cycles (elimination of recyclates with hazardous additives)
- Increased regulatory pressure and compliance costs in Europe (impact on competitiveness)
- Chemical recycling of plastics (avoid PVC discrimination)

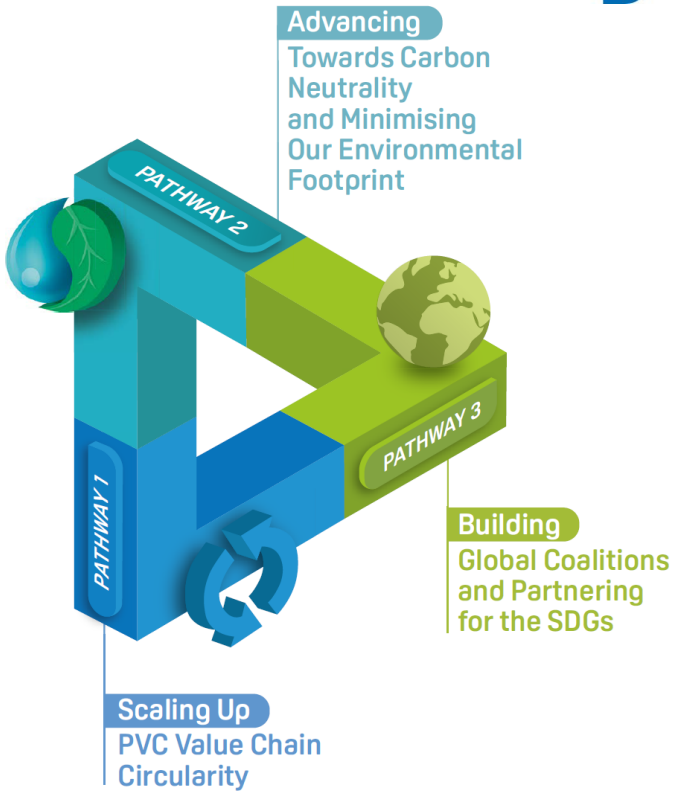
VinylPlus® and the European Legislative Landscape

European Commission

Home > Strategy > Priorities 2019-2024 > A European Green Deal

A European Green Deal

Striving to be the first climate-neutral continent



PATHWAY 2

Advancing towards Carbon Neutrality and Minimising our Environmental Footprint

ACTION AREAS AND TARGETS

2.1. ADVANCING TOWARDS CARBON NEUTRALITY

1. VinylPlus will evaluate the potential and, by 2025, report on projected core carbon reduction progress to be achieved by 2030.
2. By 2025, report on the use of renewable energy.
3. By 2025, report on sustainable feedstock sourcing.

2.2. EMBRACING THE SUSTAINABLE USE OF CHEMICAL SUBSTANCES

1. By 2021, organisation of at least one introductory ASF[3] webinar by VinylPlus.
2. By 2022, produce a report on the sectors'/partners' experience and application of the ASF tool.

Today's Programme

Programme

09:30 - 09:40	**Opening** | **Vincent Stone - Moderator**, Technical and Environmental Affairs Senior Manager, VinylPlus®
09:40 - 09:55	**Welcome and Introduction** | **Ettore Nanni**, Chairman, VinylPlus® Additives Committee
09:55 - 10:25	**What does sustainable development mean for the PVC sector, and why does it matter**| **Mark Everard**, Director, Pundamilia
10:25 - 11:00	**The basics of the ASF methodology: derivation from sustainability principles, operation and applied examples** | **Richard Blume**, Senior Sustainability Advisor, The Natural Step
11:00 - 11:30	**Benefits of using the ASF methodology for the whole PVC value chain** | **Richard Blume**, Senior Sustainability Advisor, The Natural Step
11:30 - 11:45	**ASF Digital Tools** |**Richard Blume**, Senior Sustainability Advisor, The Natural Step
11:45 - 12:00	**ASF process for companies** | **Richard Blume**, Senior Sustainability Advisor, The Natural Step
12:00 - 12:30	**Open discussion and Wrap-up** | **Ettore Nanni** and **Vincent Stone**, VinylPlus®
At 12:30	**THE END**

Introduction

Ettore Nanni

Chairman, Sustainable Use of Additives Committee, VinylPlus®

Additive Sustainability Footprint Methodology

What are PVC Additives

- PVC additives usually represent a minor part of a PVC article in weight, but they are fundamental to grant the desired performances to it, such as **mechanical, thermal and outdoor durability** (in B&C the service life of **PVC articles is of several decades**), as the possibility to be **recycled many, many times** after its first service life.

- PVC additives are obviously produced with the only scope to serve the above characteristics, hence their assessment must be conducted **according to their specified USE**, in view of bettering their sustainability performances into the analyzed PVC articles, during all the steps of their service life (raw material sourcing, transportation, manufacturing, use and then end of life analysis), seen **according to the four The Natural Step (TNS) Sustainability Principles**.

Why the ASF Assessment

- The Additive Sustainability Footprint (ASF) is a **science-based methodology**, capable to assess the above targets: based on the **Sustainability Life Cycle Assessment** (SLCA) approach developed by TNS, it has been peer-reviewed by University experts and published in the scientific peer-reviewed literature.

- The ASF methodology will allow to benchmark different additives potentially useable for the same application, and different articles (materials) devoted to the same scope – hence helping additives manufacturers in **identifying the R&D best direction; and converters, to select long-term stable and sustainable solutions**.

Our Long-Term Goal

Our ultimate goal is to develop and use PVC Additives which are:

- ✓ sustainably produced, using materials that are responsibly sourced
- ✓ supporting the sustainable development of PVC articles (e.g. useful, safe and recyclable)
- ✓ enabling vinyl products to support multiple sustainable development goals (e.g. meeting the UN SDGs)

www.vinylplus.eu
info@vinylplus.eu
vinylplus_eu
vinylplus
vinylplus

What does sustainable development mean for the PVC sector, and why does it matter?

Dr Mark Everard

Online, 9 December 2021

Additive Sustainability Footprint Methodology

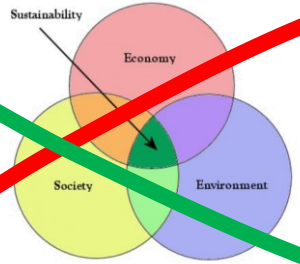
Why sustainable development?

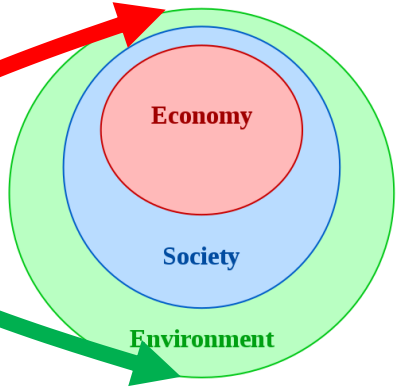
Bar-On, Y.M., Phillips, R. and Milo, R. (2018). The biomass distribution on Earth. *Proc. U.S. Natl. Acad. Sci*., 115, pp 6506-6511. DOI: https://doi.org/10.1073/pnas.1711842115

Everard, M., Johnston, P., Santillo, D. and Staddon, C.. (2020). The role of ecosystems in mitigation and management of Covid-19 and other zoonoses. *Environmental Science and Policy*, 111, pp.7-17. DOI: https://doi.org/10.1016/j.envsci.2020.05.017.

Why sustainable development?

£ € $ ₹ ¥



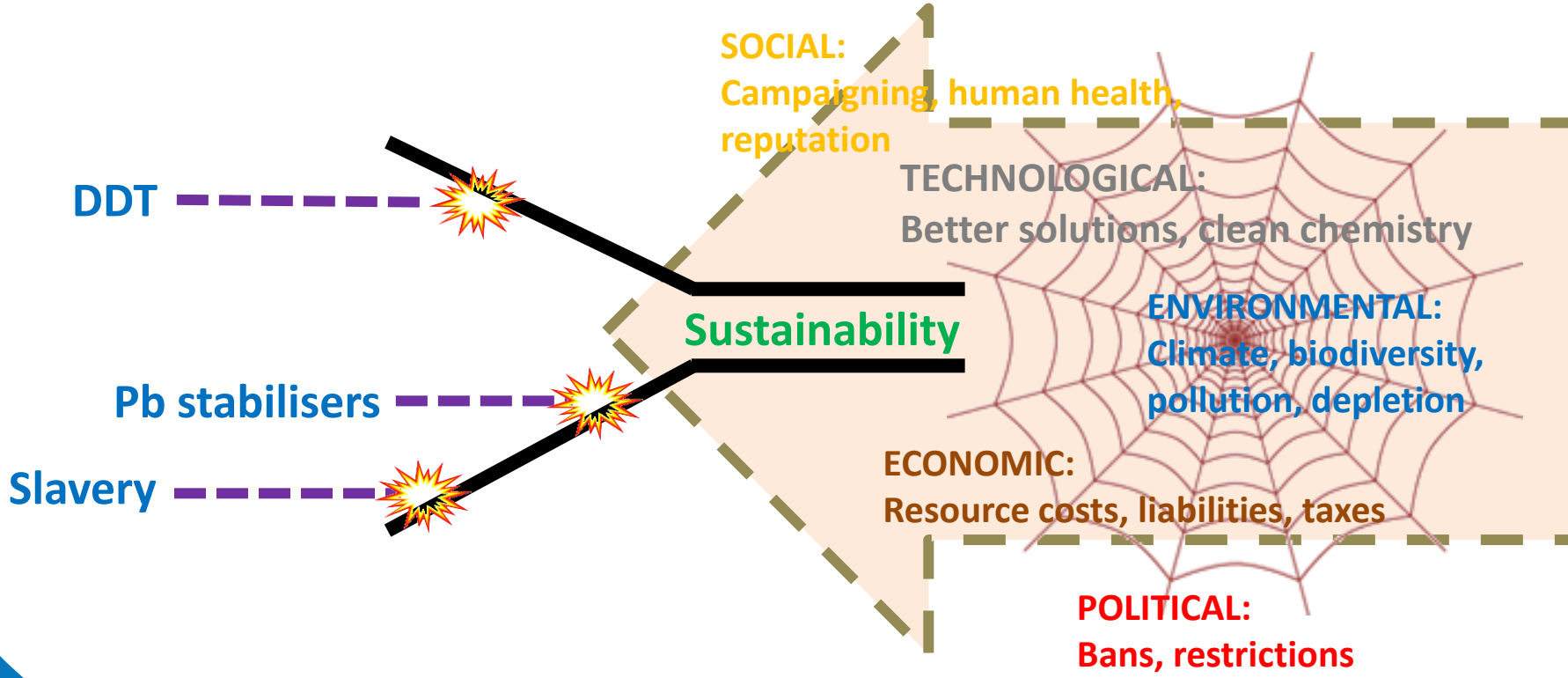


More human needs to fulfil

Less ‘stuff’ to do it with

…including waste assimilation

What does it look like in practice?



Understanding core underpinning principles matters!

1999…

PVC Free

3 PVC POISON PLASTIC

3 PVC

HYDRO

EVC
EUROPEAN VINYLS CORPORATION

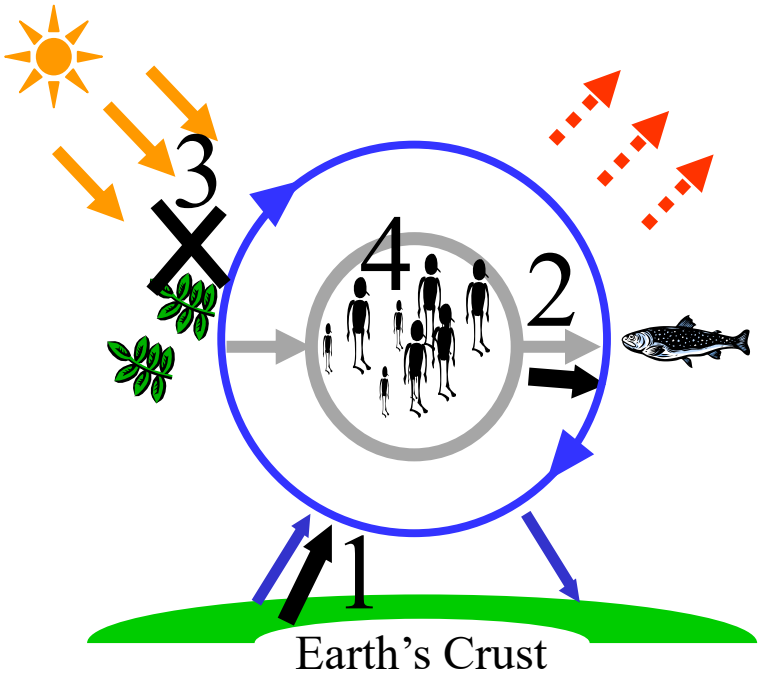
- Is the PVC industry currently sustainable?
- If not, is it moving in the direction of increased sustainability?
- What steps must it take to become sustainable?

!!!

vinyl plus

FSC Forest Stewardship Council®

Science model of The Natural Step



the NATURAL STEP

The four TNS System Conditions

In the sustainable society, nature is not subject to systematically increasing...

1… concentrations of substances extracted from the Earth's crust

2….concentrations of substances produced by society

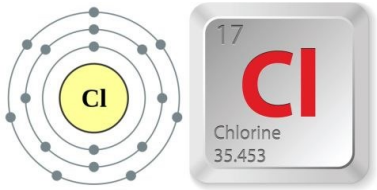
3… degradation by physical means

and, in that society

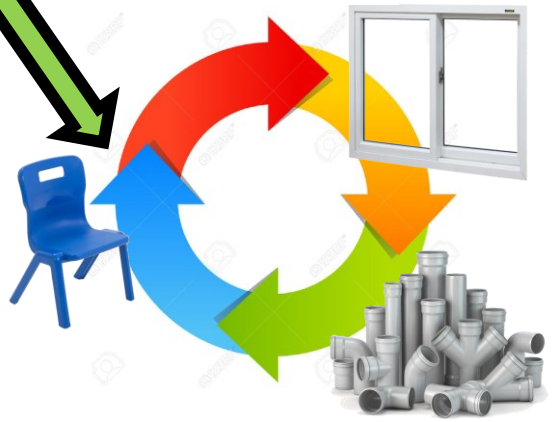
4… people are not subject to conditions that systemically undermine their capacity to meet their needs

Sustainable use…

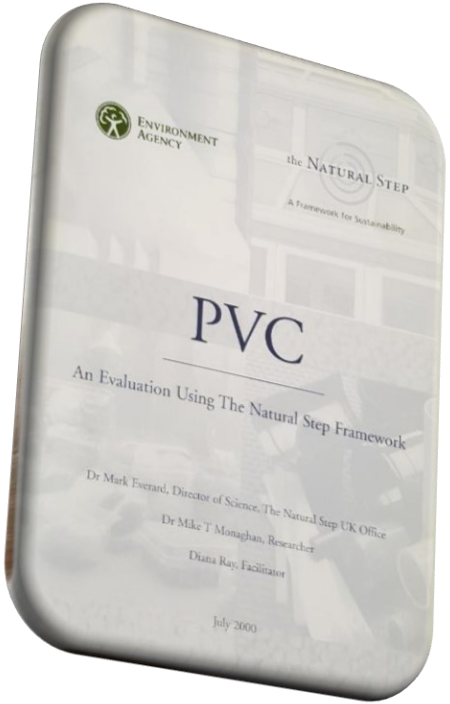
…risk, not hazard



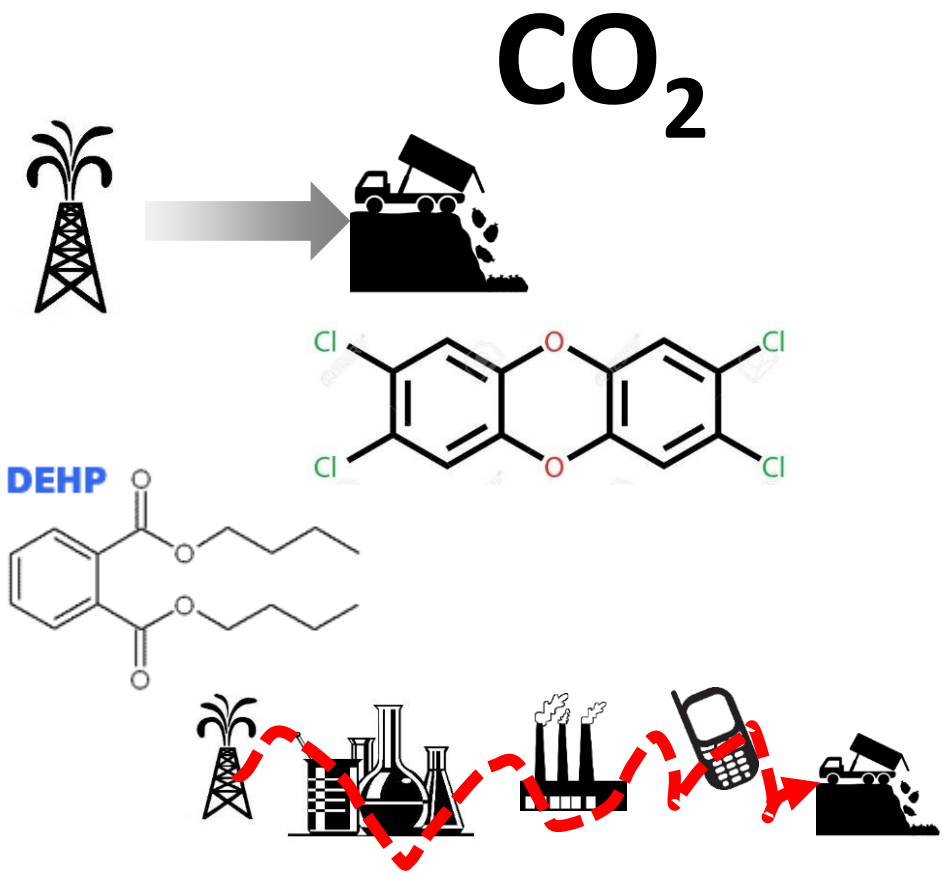
pH 1.5-3.5



TNS assessment: 2000



Everard, M., Monaghan, M. and Ray, D. (2000).
PVC: An Evaluation Using The Natural Step.
The Natural Step, Cheltenham.



The five TNS sustainability challenges for PVC

1. The industry should commit itself long term to becoming carbon-neutral

2. The industry should commit itself long term to a controlled-loop system of PVC waste

3. The industry should commit itself long term to ensuring that releases of persistent organic compounds from the whole life cycle do not result in systemic increases in concentration in nature

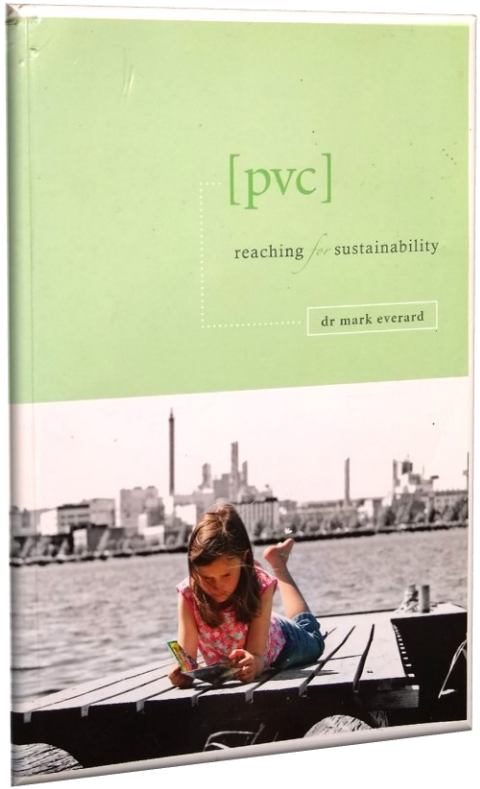
4. The industry should review the use of all additives consistent with attaining full sustainability, and especially commit to phasing out long term substances that can accumulate in nature or where there is reasonable doubt regarding toxic effects

5. The industry should commit to the raising of awareness about sustainable development across the industry, and the inclusion of all participants in its achievement

Europe-wide voluntary commitment #01

VINYL 2010

The story to date... more or less a decade ago



Everard, M. (2008).
PVC: Reaching for Sustainability.
IOM3 and The Natural Step.

Europe-wide voluntary commitment #02

the NATURAL STEP

TNS System Conditions

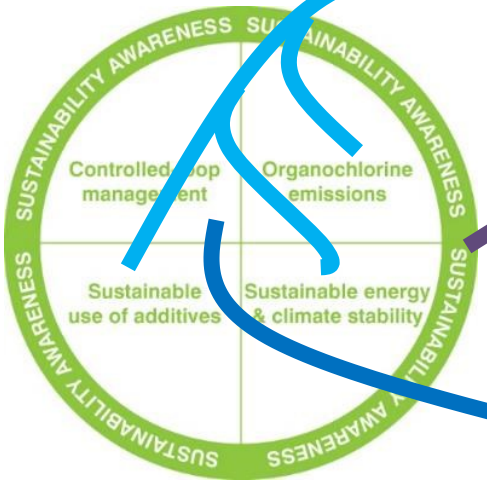
1. 
2. 
3. 
4. 

5 Challenges

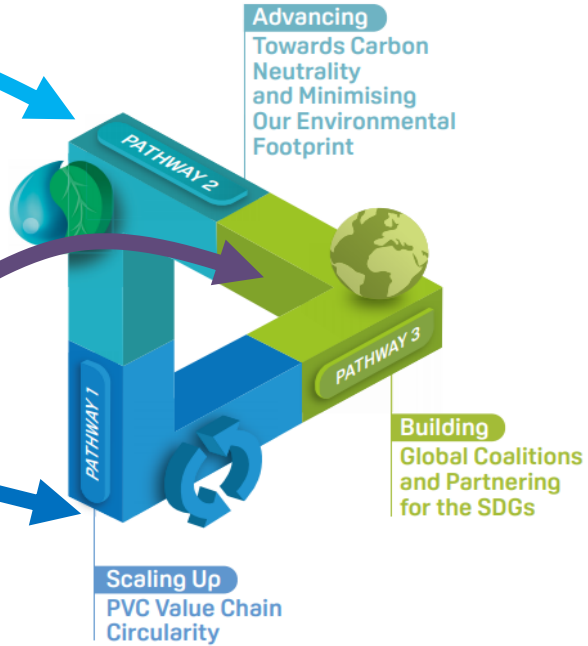
A basis in science

vinyl plus
COMMITTED TO SUSTAINABLE DEVELOPMENT

Five challenges, 2011



Three pathways: Relaunched 2021



vinyl plus

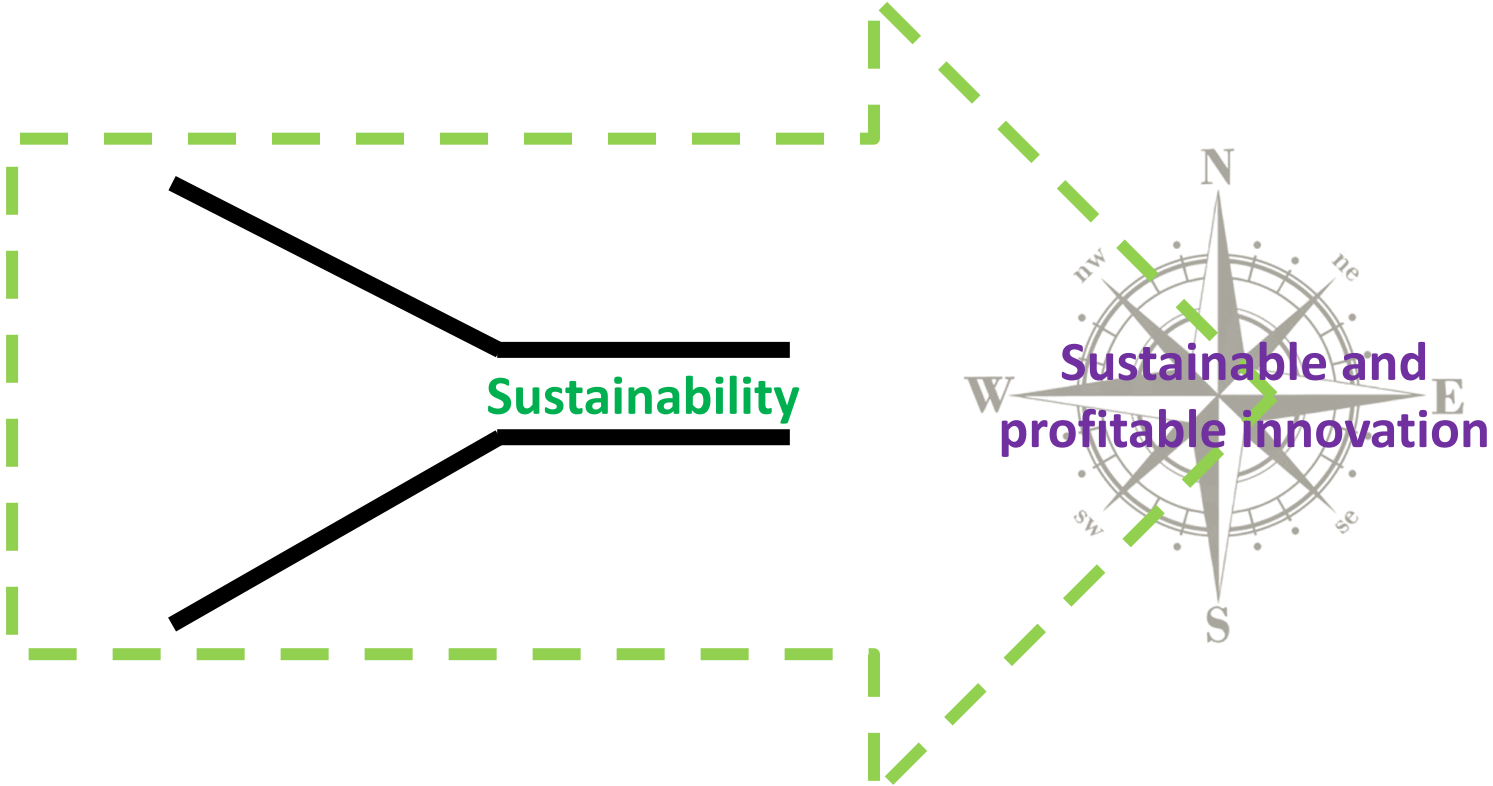
The UN Sustainable Development Goals (SDGs)

UNDP: "Meeting citizens' aspirations for peace, prosperity, and wellbeing, and to preserve our planet"

VinylPlus Progress Report 2021

Everard, M. (2017).
Repurposing business around the meeting of human needs.
Environmental Scientist, September 2017, pp.40-45.

A compass for sustainable and profitable innovation



A level playing field: for materials

Twenty years of the PVC challenges

Twenty Years of the Polyvinyl Chloride Sustainability Challenges

Mark Everard
Department of Geography and Environmental Management, University of the West of England (UWE), Coldharbour Lane, Frenchay Campus, Bristol, BS16 1QY, UK

Intense campaigning pressure on the UK polyvinyl chloride (PVC) sector up to the late 1990s forced strategic engagement with sustainable development. Simplified outcomes from a detailed, consensus-based analysis by science-based NGO The Natural Step (TNS) took the form of five TNS sustainability challenges for PVC published in 2000. UK manufacturing companies initially used these challenges to direct strategic progress. The challenges have since been progressively taken up across European PVC value chains. The VinylPlus® program uses an updated version of the five challenges as a basis for voluntary commitments and transparent auditing of progress against published targets. Initial framing of the five TNS sustainability challenges for PVC was drafted consciously for generic relevance to other materials. Assessing the sustainability performance of some alternative materials to PVC against the five sustainability challenges reveals different sustainability performance in a range of potential applications. This highlights the danger inherent in automatic selection or deselection of materials in the absence of assessment of options on a "level playing field" of sustainability principles. The five TNS sustainability challenges for PVC remain valid today and into the longer-term future as a basis for making stepwise, profitable progress toward the goal of sustainability for PVC and other materials. J. VINYL ADDIT. TECHNOL., 26:390–402, 2020. © 2019 The Author. Journal of Vinyl and Additive Technology published by Wiley Periodicals, Inc. on behalf of Society of Plastics Engineers.

INTRODUCTION

Polyvinyl Chloride (PVC) may be one of the world's most highly scrutinized materials due to interconnected NGO, media, and regulatory pressures, with additional demands from retailers that had become the focus of NGO activism relating to sale of PVC-containing products [1]. A positive outcome of these pressures is that is forced the PVC industry to engage strategically with sustainable development from the late 1990s onward, well ahead of other plastics and many other material industries. In order to address intense NGO and media pressure in relation principally to aspects of environmental performance, a PVC Coordination Group was established in the United Kingdom in 1998 including the two UK PVC manufacturing companies at the time (Hydro Polymers and EVC), the Environment Agency, the NGO Greenpeace, and a range of retailers including Tesco, Asda, Waitrose, the Cooperative Society, and the Body Shop (a retailer with "green" credentials). The Group was chaired by Jonathon Porritt (Co-founder and Executive Director of the sustainable development charity *Forum for the Future*). Shortly after its inception, Greenpeace and The Body Shop elected to leave the PVC Coordination Group.

Recognizing that proactive exploration of sustainable development was highly germane to addressing problems and perceptions of PVC, the Chairman of the Group approached sustainable development NGO The Natural Step (TNS). TNS was consequently commissioned to undertake a sustainable development assessment based on its science-based principles of sustainability (known as the framework for strategic sustainable development or FSSD) and associated tools. The brief was to assess the current performance and trajectory of PVC manufacture and use by society, and the steps that would be necessary were it possible for the material to be envisaged as part of a sustainable future; in other words, a gap analysis of what it would take to make PVC truly sustainable. Key among the TNS tool set is a science-based definition of necessary conditions for sustainability (the four TNS "System Conditions"), assessment of current sustainability performance based on System Conditions, visioning of the goal of full sustainability also based on compliance with System Conditions, and a backcasting approach to identify strategic steps toward the vision of a fully sustainable end point. In 2000, TNS published a sustainability assessment of PVC [2], developed through a consensus-building process facilitated by TNS and supported by the Environment Agency in England and Wales. Summarizing the outcomes of this TNS-based analysis in tractable terms was a series of five TNS sustainability challenges for PVC (see Table 1).

Recognizing both the business opportunities of innovations pre-empting future negative sustainability impacts

Correspondence to: M. Everard; e-mail: mark.everard@uwe.ac.uk
DOI 10.1002/vnl.21754
Published online 14 Wiley Online Library (wileyonlinelibrary.com).
This is an open access article under the terms of the Creative Commons Attribution License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.
© 2019 The Author. Journal of Vinyl and Additive Technology published by Wiley Periodicals, Inc. on behalf of Society of Plastics Engineers.

Everard, M. (2020).
Twenty years of the Polyvinyl Chloride (PVC) sustainability challenges.
***Journal of Vinyl and Additive Technology*. 26(3), pp.390-402.**
DOI: https://doi.org/10.1002/vnl.21754.

A level playing field: internationally

REGULATIONS

verified vinyl®

VinylPlus® Product Label

VinylPlus certifications

VinylPlus certifications

Forest Stewardship Council®

VinylPlus® Product Label

£

➔ Market differentiation
➔ Trusted supplier

➔ Additives as the PVC battleground

www.vinylplus.eu
info@vinylplus.eu
vinylplus_eu
vinylplus
vinylplus

“Backcasting” from sustainable PVC products

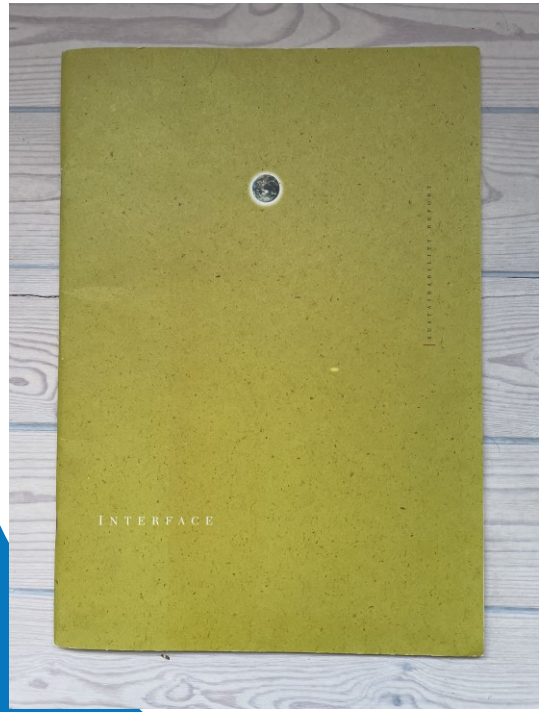
Richard Blume

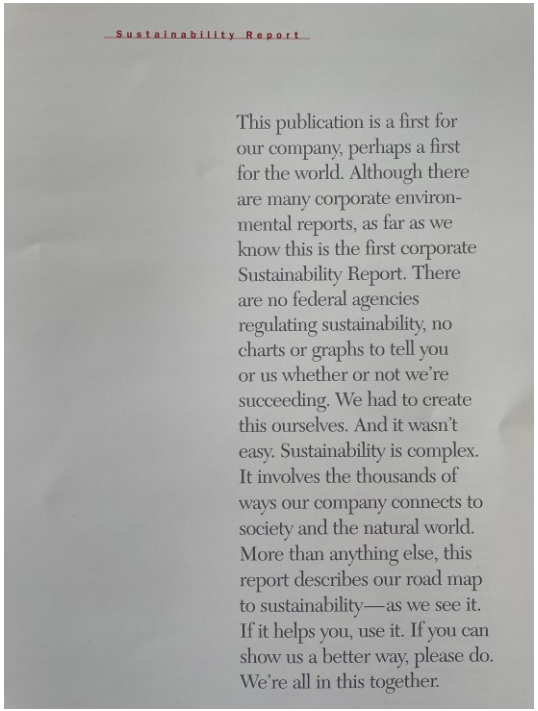
The Natural Step

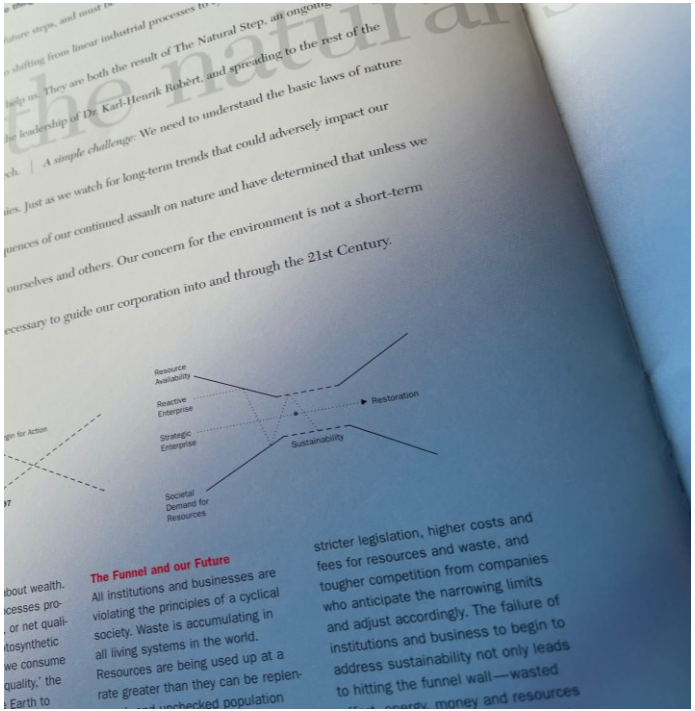
Additive Sustainability Footprint Methodology

1 The foundations of ASF

1997


INTERFACE


Sustainability Report
This publication is a first for our company, perhaps a first for the world. Although there are many corporate environmental reports, as far as we know this is the first corporate Sustainability Report. There are no federal agencies regulating sustainability, no charts or graphs to tell you or us whether or not we're succeeding. We had to create this ourselves. And it wasn't easy. Sustainability is complex. It involves the thousands of ways our company connects to society and the natural world. More than anything else, this report describes our road map to sustainability—as we see it. If it helps you, use it. If you can show us a better way, please do. We're all in this together.


the natural
leadership of Dr. Karl-Henrik Robèrt, and spreading to the rest of the
A simple challenge: We need to understand the basic laws of nature
ourselves and others. Our concern for the environment is not a short-term
ecessary to guide our corporation into and through the 21st Century.
Resource Availability
Reactive Enterprise
Strategic Enterprise
Societal Demands for Resources
Restoration
Sustainability
The Funnel and our Future
All institutions and businesses are violating the principles of a cyclical society. Waste is accumulating in all living systems in the world. Resources are being used up at a rate greater than they can be replen-
stricter legislation, higher costs and fees for resources and waste, and tougher competition from companies who anticipate the narrowing limits and adjust accordingly. The failure of institutions and business to begin to address sustainability not only leads to hitting the funnel wall—wasted

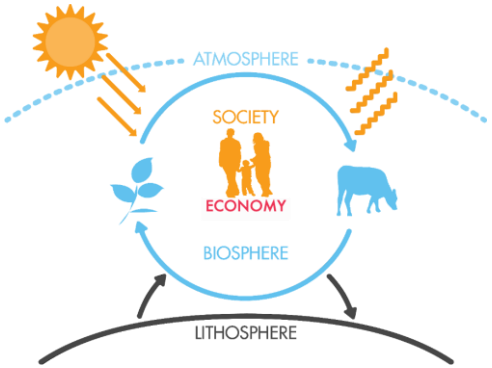
Definitions matter

- “Sustainable” society?
- “Sustainable” value chain?
- “Sustainable” company?
- “Sustainable” product?
- “Sustainable” material?
- “Sustainable” chemical?

Overview

- **A science-based definition of sustainability (System Conditions)**
- **A process to 'backcast' from success (ABCD)**
- **A tool to assess life cycles of 'products' (SLCA)**
- **A customised / standardised application of the tool specifically for additives (ASF)**
  - A definition of sustainable use of additives
  - A protocol for setting rules for consistent use across the industry (Generic ASF)
  - A programme to certify how ASF is applied within companies (Company ASF)

Science and systems thinking



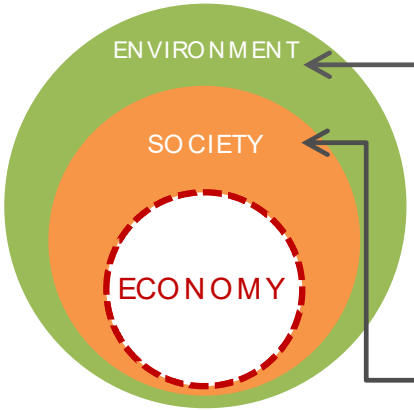
IN A SUSTAINABLE SOCIETY...

To create a truly sustainable society, some basic conditions need to be met. These science-based 'system conditions' provide a design frame for organisations that want to envision their place in a sustainable future.

System conditions for a sustainable society

The Natural Step

IN A SUSTAINABLE SOCIETY...



...nature is not subject to systematically increasing...

... concentrations of substances from the earth's crust;

... concentrations of substances produced by society;

... degradation by physical means;

...and in that society...

...there are no structural barriers to peoples'...

...health ... competence ... impartiality

...influence ... meaning-making

Backcasting from success

Backcasting for companies / products

Responsible sourcing

Avoid externalizing breaches of the System Conditions in the supply chain and work to create inclusive and transparent business practices that improve living standards.

Sustainable operations

Align with the System Conditions and create restorative effects through own operational activities

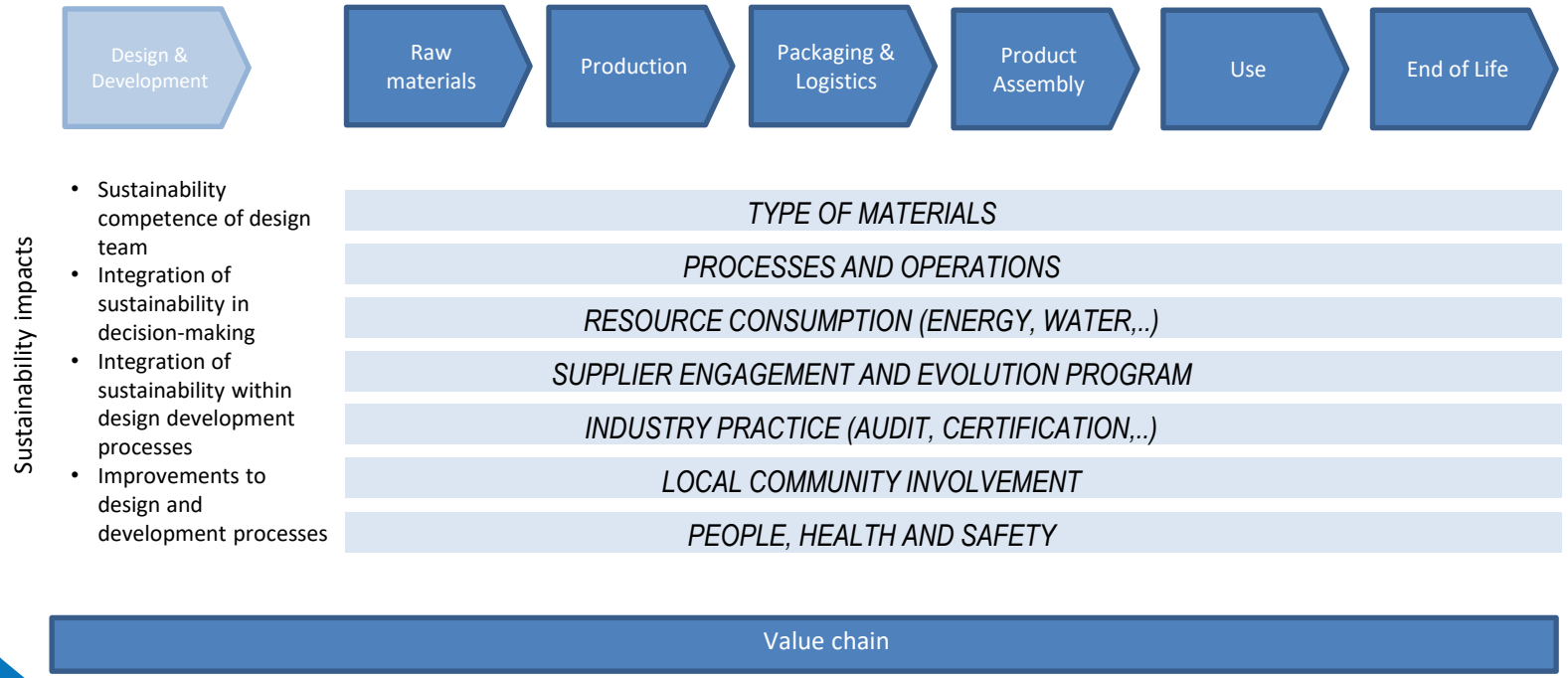
Serving societal needs

Avoid forcing breaches of the System Conditions to occur through the sale of goods and services, help others to align with the System Conditions and provide beneficial products that meet society's needs.

A focus on mutual accountability for impacts and positive contributions to sustainable development

Strategic Life Cycle Assessment (SLCA)

Strategic Life Cycle Assessment (SLCA)



RAW MATERIALS	ADDITIVE PRODUCTION	PACKAGING & DISTRIBUTION	PVC COMPOUNDING / CONVERTING	PRODUCT USE	PRODUCT FATE

Asking smart questions for each life cycle stage and sustainability principle

	RAW MATERIALS	ADDITIVE PRODUCTION	PACKAGING & DISTRIBUTION	PVC COMPOUNDING / CONVERTING	PRODUCT USE	PRODUCT FATE
	?	?	?	?	?	?
	?	?	?	?	?	?
	?	?	?	?	?	?
	?	?	?	?	?	?

Asking smart questions for each life cycle stage and sustainability principle

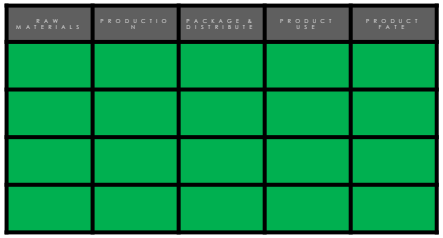
RAW MATERIALS	ADDITIVE PRODUCTION	PACKAGING & DISTRIBUTION	PVC COMPOUNDING / CONVERTING	PRODUCT USE	PRODUCT FATE

Asking smart questions for each life cycle stage and sustainability principle

RAW MATERIALS	ADDITIVE PRODUCTION	PACKAGING & DISTRIBUTION	PVC COMPOUNDING / CONVERTING	PRODUCT USE	PRODUCT FATE

Backcasting from a sustainable product (SLCA)

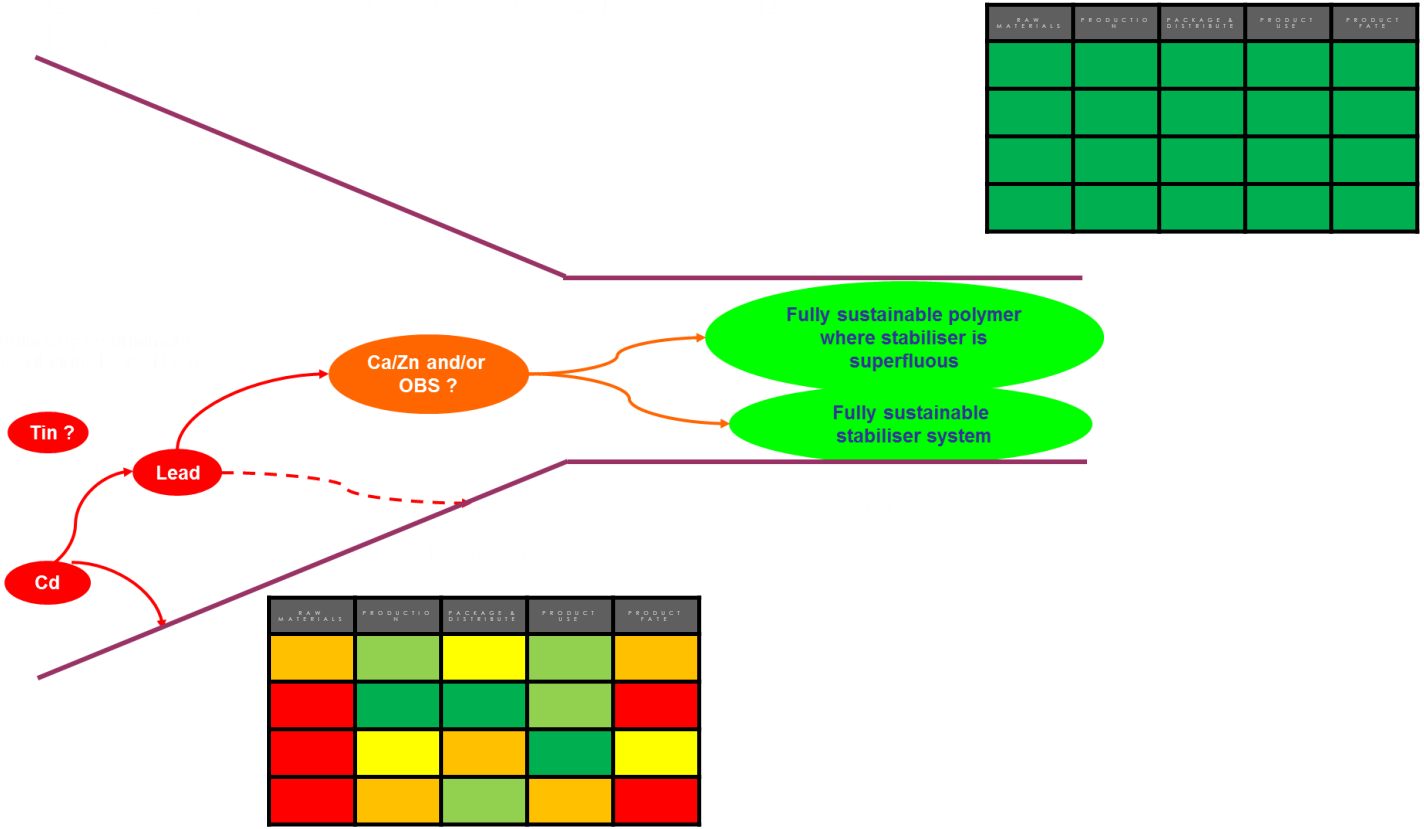
Developing a concrete vision and understanding of the sustainable product



Finding smart and innovative pathways between.

Identifying the sustainability strength's and weaknesses

Example


RAW MATERIALS
PRODUCTION
PACKAGE & DISTRIBUTE
PRODUCT USE
PRODUCT FATE
Fully sustainable polymer where stabiliser is superfluous
Ca/Zn and/or OBS ?
Fully sustainable stabiliser system
Tin ?
Lead
Cd
RAW MATERIALS
PRODUCTION
PACKAGE & DISTRIBUTE
PRODUCT USE
PRODUCT FATE

Example

SLCA on PVC heat stabilizers: outcomes

bad > > > > good

Existing	System Conditions			
Life Cycle Stages	SC1	SC2	SC3	SC4
1. Raw materials	*		**	
2. Stabilizer synthesis	***	***		
3. Packaging & distribution				
4. PVC processing				
5. Use of rigid PVC articles				
6. End of life				

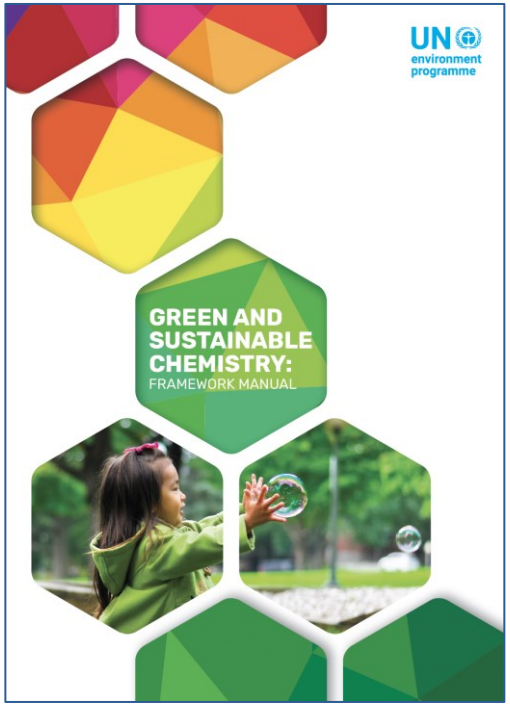
Proposed	System Conditions			
Life Cycle Stages	SC1	SC2	SC3	SC4
1. Raw materials	*		**	
2. Stabilizer synthesis	***	***		
3. Packaging & distribution				
4. PVC processing				
5. Use of rigid PVC articles				
6. End of life				

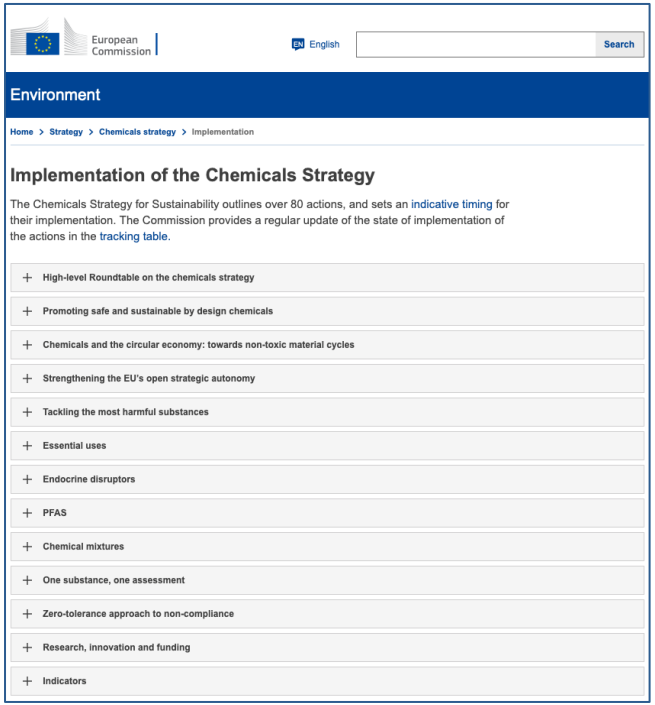
- SC1 : "… not increasing concentrations of substances extracted from Earth's crust"
- SC2 : "… not increasing concentrations of substances produced by society"
- SC3 : "…not increasing degradation by physical means"
- SC4 : "… no conditions that underdetermine people's capacity to meet their needs"

Questions

- What is a “sustainable” society?
- What is a “sustainable” value chain?
- What is a “sustainable” company?
- What is a “sustainable” product?
- What is a “sustainable” material?
- What is a “sustainable” chemical?

2 Benefits


UN environment programme
GREEN AND SUSTAINABLE CHEMISTRY:
FRAMEWORK MANUAL


European Commission
English
Search
Environment
Home > Strategy > Chemicals strategy > Implementation
Implementation of the Chemicals Strategy
The Chemicals Strategy for Sustainability outlines over 80 actions, and sets an indicative timing for their implementation. The Commission provides a regular update of the state of implementation of the actions in the tracking table.
High-level Roundtable on the chemicals strategy
Promoting safe and sustainable by design chemicals
Chemicals and the circular economy: towards non-toxic material cycles
Strengthening the EU's open strategic autonomy
Tackling the most harmful substances
Essential uses
Endocrine disruptors
PFAS
Chemical mixtures
One substance, one assessment
Zero-tolerance approach to non-compliance
Research, innovation and funding
Indicators

ASF will help you to

- Recognize and work toward credible design criteria for sustainable use of additives.
- Identify strength's, weaknesses and gaps in current knowledge across the full life cycle of additives and their applications.
- Understand the sustainability performance of additives in specific product applications
- Develop innovation roadmaps and prioritise innovations enabling the highest sustainability performance.
- Build a stronger connection between industry, company and product level sustainability objectives.

vinyl plus

Additive
Sustainability
Footprint

Key Benefits for additives producers:

- Understand the sustainability performance of additives in specific product applications
- Understand how to guide dialogue with customers on specifications that make products more sustainable
- Become a supplier of choice for converters by using an industry-consistent approach
- Prioritise innovations enabling the highest sustainability performance

Key Benefits for converters

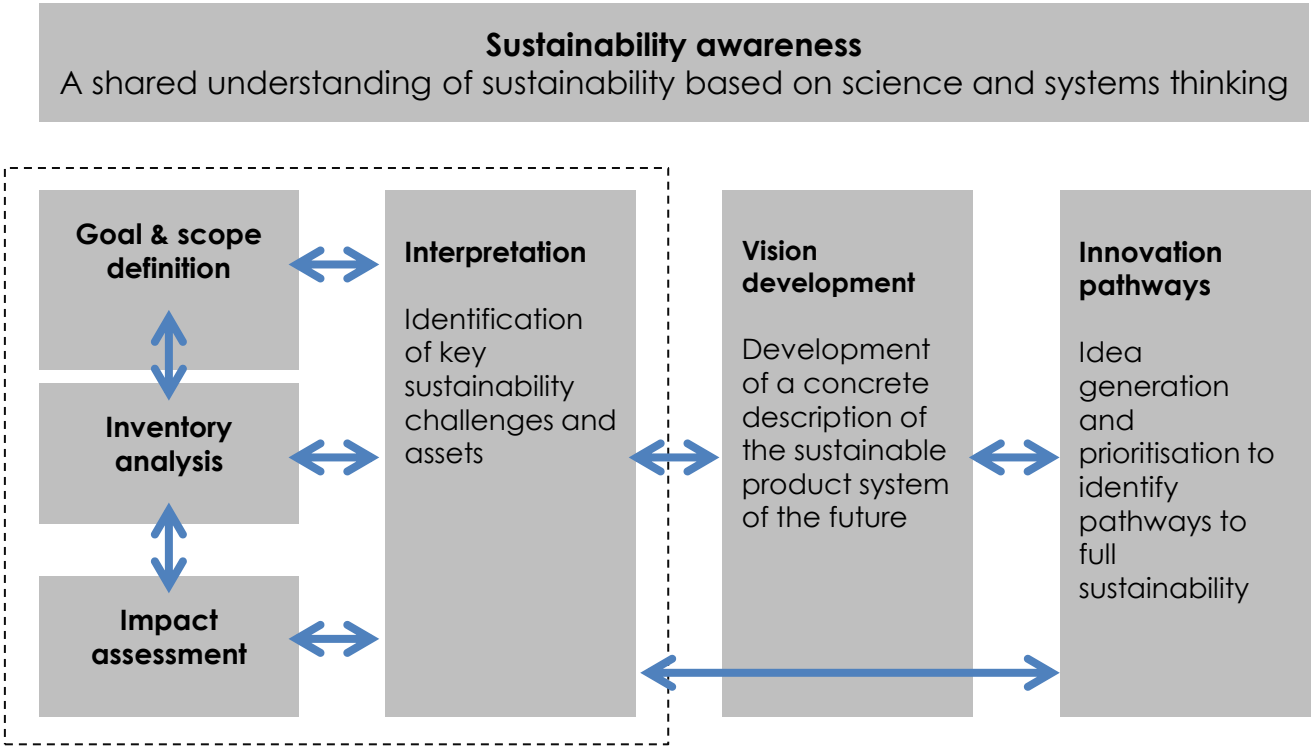
- Increase awareness of the additives and supply chains related to PVC
- Understand how to guide dialogue with suppliers on specifications to make formulations and products more sustainable
- Make informed decisions on additives to be used
- Earn a higher audit score for criteria 6.1 of the - VinylPlus® Product Label and thus increase the visibility of a product

Key Benefits for industry and society

- An industry-wide methodology using inputs from best practice procedures (REACH, LCA, PEF)
- A tool enabling communication on the contribution of additives towards sustainable development
- Evidence for regulators and legislators that a risk-based approach across whole product life cycles offers greater insight and impact than a simplistic hazard-based approach
- Depth of analysis adapted to different budgets and timeframes

3 A closer look at ASF

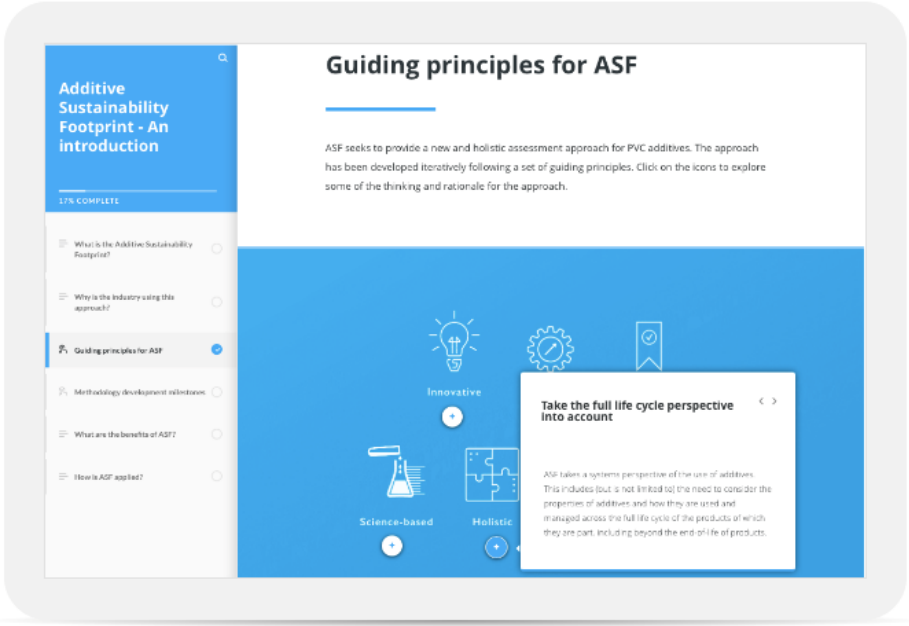
What the process looks like

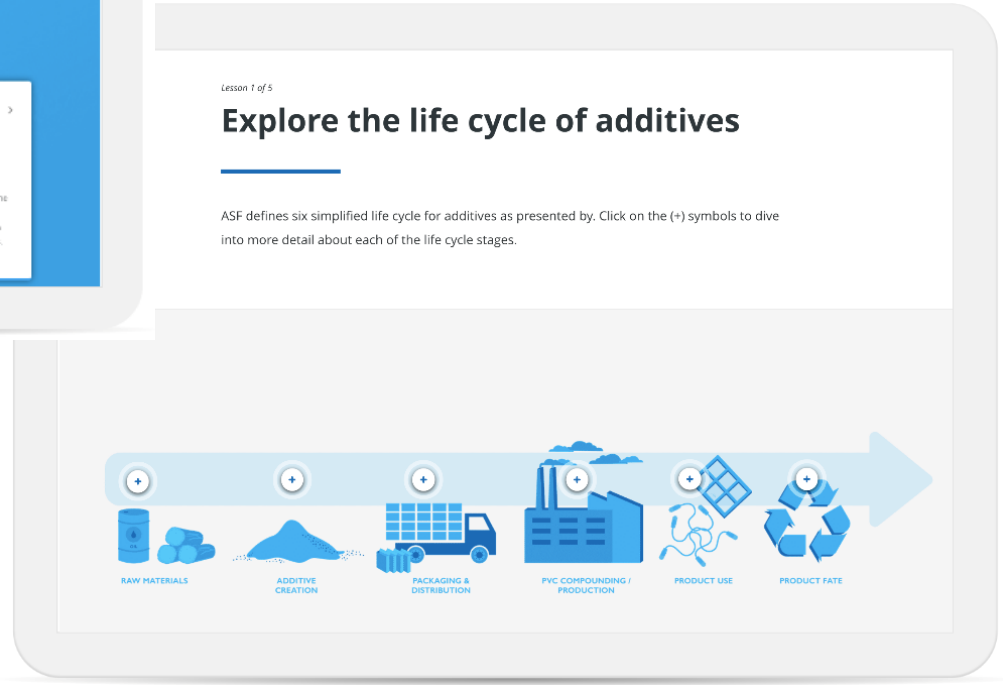


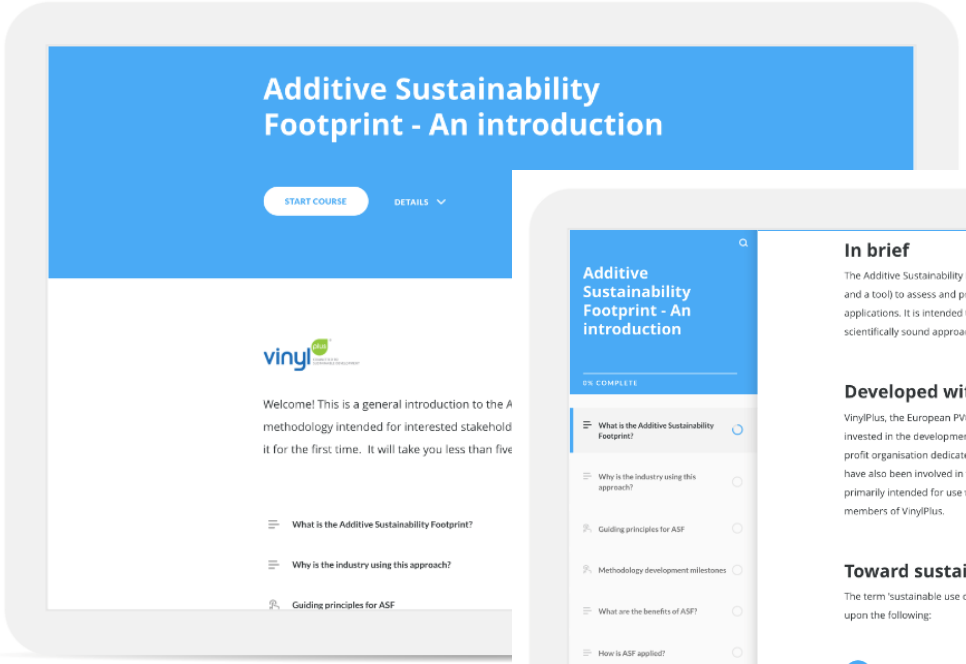
Aligned with the ISO 1404X

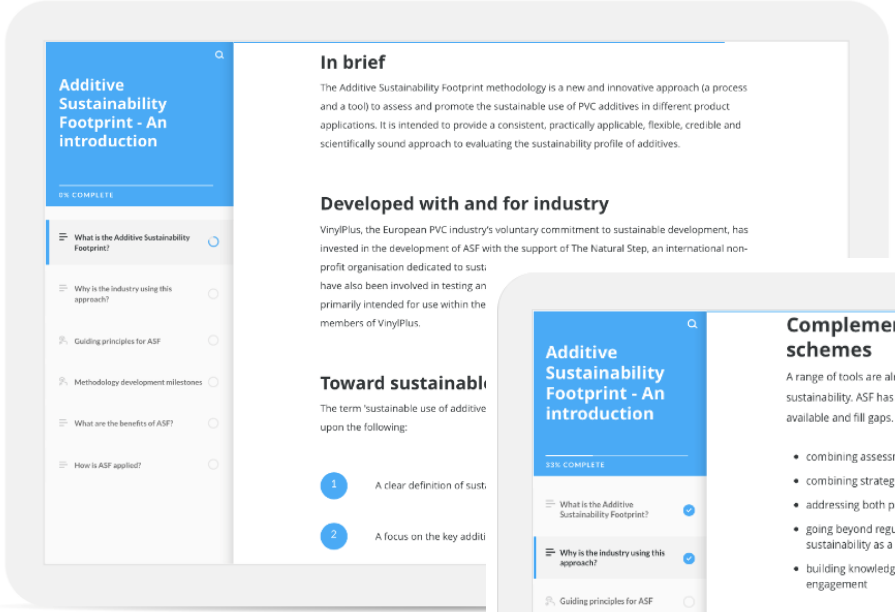
Implemented in 10 steps

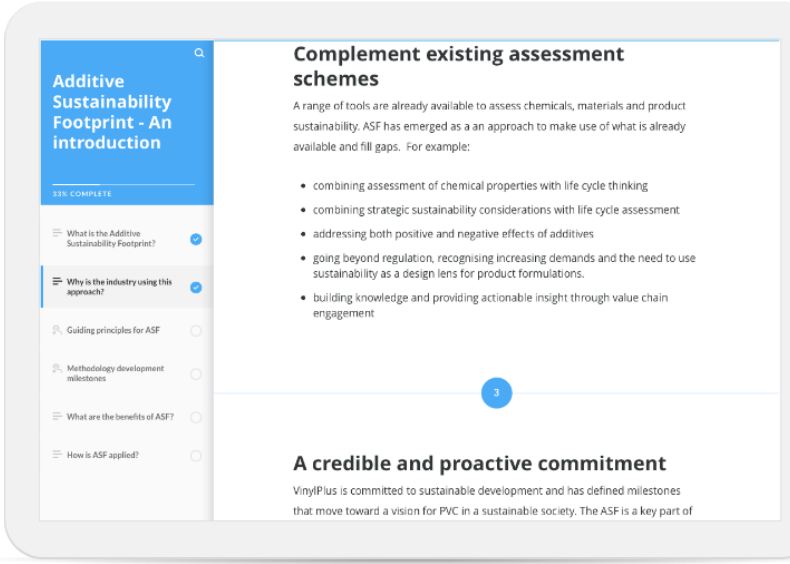
SLCA Process steps
1. Goal and scope definition
2. The Sustainable Product-Service System
3. Setting system boundaries
4. Inventory analysis
5. Sustainability assessment
6. Analysis & synthesis
7. Idea generation
8. Prioritisation
9. The innovation action plan
10. Measure and report progress


Additive Sustainability Footprint - An introduction
17% COMPLETE
What is the Additive Sustainability Footprint?
Why is the industry using this approach?
Guiding principles for ASF
Methodology development milestones
What are the benefits of ASF?
How is ASF applied?
Guiding principles for ASF
ASF seeks to provide a new and holistic assessment approach for PVC additives. The approach has been developed iteratively following a set of guiding principles. Click on the icons to explore some of the thinking and rationale for the approach.
Innovative
Science-based
Holistic
Take the full life cycle perspective into account
ASF takes a systems perspective of the use of additives. This includes (but is not limited to) the need to consider the properties of additives and how they are used and managed across the full life cycle of the products of which they are part, including beyond the end-of-life of products.


Lesson 1 of 5
Explore the life cycle of additives
ASF defines six simplified life cycle for additives as presented by. Click on the (+) symbols to dive into more detail about each of the life cycle stages.
RAW MATERIALS
ADDITIVE CREATION
PACKAGING & DISTRIBUTION
PVC COMPOUNDING / PRODUCTION
PRODUCT USE
PRODUCT FATE


Additive Sustainability Footprint - An introduction
START COURSE
DETAILS
Welcome! This is a general introduction to the A
methodology intended for interested stakehold
it for the first time. It will take you less than five
What is the Additive Sustainability Footprint?
Why is the industry using this approach?
Guiding principles for ASF


Additive Sustainability Footprint - An introduction
0% COMPLETE
What is the Additive Sustainability Footprint?
Why is the industry using this approach?
Guiding principles for ASF
Methodology development milestones
What are the benefits of ASF?
How is ASF applied?
In brief
The Additive Sustainability Footprint methodology is a new and innovative approach (a process and a tool) to assess and promote the sustainable use of PVC additives in different product applications. It is intended to provide a consistent, practically applicable, flexible, credible and scientifically sound approach to evaluating the sustainability profile of additives.
Developed with and for industry
VinylPlus, the European PVC industry's voluntary commitment to sustainable development, has invested in the development of ASF with the support of The Natural Step, an international non-profit organisation dedicated to susta
have also been involved in testing an
primarily intended for use within the
members of VinylPlus.
Toward sustainabl
The term 'sustainable use of additive
upon the following:
1
A clear definition of sust
2
A focus on the key additi


Additive Sustainability Footprint - An introduction
33% COMPLETE
What is the Additive Sustainability Footprint?
Why is the industry using this approach?
Guiding principles for ASF
Methodology development milestones
What are the benefits of ASF?
How is ASF applied?
Complement existing assessment schemes
A range of tools are already available to assess chemicals, materials and product sustainability. ASF has emerged as a an approach to make use of what is already available and fill gaps. For example:
combining assessment of chemical properties with life cycle thinking
combining strategic sustainability considerations with life cycle assessment
addressing both positive and negative effects of additives
going beyond regulation, recognising increasing demands and the need to use sustainability as a design lens for product formulations.
building knowledge and providing actionable insight through value chain engagement
3
A credible and proactive commitment
VinylPlus is committed to sustainable development and has defined milestones that move toward a vision for PVC in a sustainable society. The ASF is a key part of

Success criteria for sustainable use of additives

System Conditions for a sustainable society	Related topics	Success criteria for the sustainable use of additives
 1. Substances from the Earth's crust must not systematically increase in concentration in nature.	• Metals & minerals • Energy • Renewable / recycled materials	• Scarce metals, minerals and fossil carbon must not be released to nature at a rate that exceeds the rate of re-assimilation. This implies the phase-out, or the recapture in controlled loops, of scarce mined materials. • The energy sources must be renewable. • The sources of raw materials must be renewable, or the resources must be fully recycled.
 2. Substances produced by society must not systematically increase in concentration in nature	• Circular flows (bio-degradability / technical loops) • Efficient production • Benign emissions	• Raw materials used for production of additive components must be degradable unless managed in controlled-loop systems or incorporated into articles which can be recycled. • Additive components that are able to migrate must be degradable unless managed in controlled-loop systems. • Across product life cycles, emissions or discharges resulting from the production/use of additive systems must be kept to a minimum as a resource conservation measure but, where unavoidable, should only comprise degradable substances. • Controlled-loop systems and recycling processes must themselves avoid pollution and must also be optimized to retain the highest resource potential.
 3. Nature must not be systematically degraded by physical means.	• Water use • Resource use • Land use • Ecosystem disturbance	• Sourcing of raw materials used for production of additives must come from well-managed ecosystems.
 4. People must not be subject to structural obstacles to health, influence, competence, impartiality and meaning.	• Health & safety • Basic rights • Skills and knowledge • Equity (resource efficiency / depletion) • Well-being / meaning	• The additives enable reliable technical performance to deliver functionality that helps to support diverse human needs. • The sourcing and production of additives must occur under safe and responsible social conditions. • PVC products & additives embedded in them must not lead to negative impacts on the wellbeing of humans or the environment. • The additives must not restrict the capacity for efficient management of resources through mechanical & feedstock recycling either by: a) reduction in the quality and quantity of the recyclate b) preventing the mixing of PVC from multiple end-of-life and post-industrial products in recycling streams (compatibility) ○ There must be trust-worthy information to track and trace PVC products and their additives.

Additive Sustainability Footprint - Project Definition

The project details below are to be completed by the project initiator when starting a new ASF assessment. A project is typically defined around a product and includes a number of separate Strategic Life Cycle Assessments of additives used in the product application.

Project Name	Enter details
Give the project a name	Generic assessment for flooring sector
PVC product application	
Describe the product application in which PVC additives are to be used e.g. "PVC Window profile used in industrial buildings etc."	Industrial PVC flooring
Assessment Objectives	
ASF can serve multiple objectives. Indicate the extent to which the following objectives apply:	Low priority < - - - - - - - - -> High priority
AWARENESS – raise awareness of criteria for sustainable use of additives	☐ ☐ ☑
ASSESSMENT - understand strengths and challenges for different additives	☐ ☐ ☐
COMMUNICATION - inform communication of additive sustainability performance	☐ ☑ ☐
INNOVATION - learn where to improve to move toward sustainable use of additives	☐ ☐ ☑
Other objectives (please specify)	Controlled loop applications
Assessment Details	
	Select / Notes
Type of assessment:	Generic product assessment with typical additives
Assurance level:	Self assessment without review (internal purposes)
Project Team	
ASF relies on industry knowledge about the life cycle of additives and PVC products. A cross functional team drawn from across the value chain is recommended where this is possible. Please list the project participants.	
Project Commissioner / Lead	XXX
Project Participants	YYY
Topic experts (if applicable)	ZZZ

Data sources	Select	Notes
Specify types of data sources		
Expertise within one company	☑	
Expert group from across the life cycle	☑	
Consultation with topic experts	☑	
Quantified LCA data / prior studies available.	☑	
List any available documents relevant for the project	lkjfklasjflksaj	

ASF_Goal and Scope

Define Project | Define Key Additives

Assessment Scope - Defining Key Additives

ASF is an assessment of the 'key additives' in a PVC product application. Here the project initiator and / or project team are asked to determine which additives are to be assessed by creating an inventory of the additives appearing in the product application. Their concentration, ingredients and chemical classifications are then used to determine which additives are considered Key Additives for the assessment

Definitions:	
Additive	An Additive (assessed through the ASF system) is a chemical substance added to the PVC resin during its processing (compounding, extrusion, calendering, moulding, etc..), to enable the processing to occur; and also, to offer to the final article specific performances and/or cost. Additives assessed through ASF typically include: stabiliser and co-stabilisers, lubricants, plasticisers, impact modifiers, processing aids, pigments and fillers. They don't include other materials (such as gaskets, reinforcing components, etc..) which are already considered into the article's EPD.
Key Additive	"Any chemical substance included into the above additive classes, incorporated into a PVC article or compound at a concentration above 0.3 phr (parts per hundred of PVC), unless included into the SVHC list or classified as CMR Cat 1a or 1b, or PBT, or of an equivalent level of concern (in which case, the threshold will become 0.1%, coherently with REACH)."

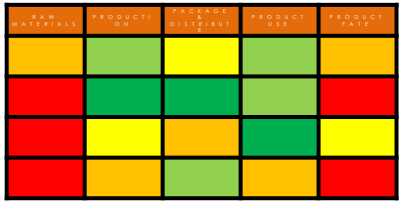
Additives within the PVC formulation and PVC article			Additive Composition - Ingredients used to make each additiv			Substance Hazards and already known Sustainability Risks				Meets criteria for Key Additive to include in ASF assessment
Additive Name	**Additive Function**	**Contribution to PVC formulation (parts per hundred)**	**Substance Name**	**% in additive**	**EEC / CAS number**	**Exhibits SVHC Properties?**	**Any known Value Chain sustainability hotspots / issues?**	**Comments**	**Concentration of classified substances in finished PVC article (%)**	**Additive should be included in ASF assessment**
Additive1	Stabiliser / Co-stabiliser	0.32	Substance X			No	No			Yes
						No	Select…			
Additive2	Lubricant	0.05	Substance Y			No	Select…		0.15	-
						Select…	Select…			
Additive3	Pigment	0.05				Select…	Yes	Conflict minerals used	0.13	Yes
						Select…	Select…			

Understanding the structure of the assessment

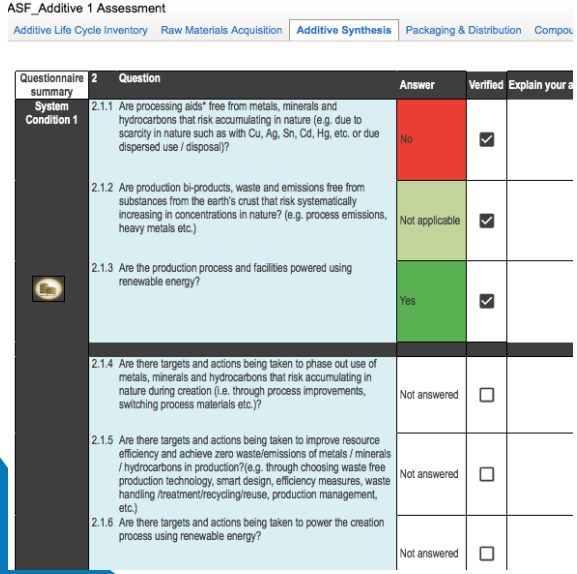
Impact Questions + Progress Questions = Life Cycle Hotspot / Health Check

Yes / No impact

Yes / No Progress



Different depths of information



ASF_Additive 1 Assessment

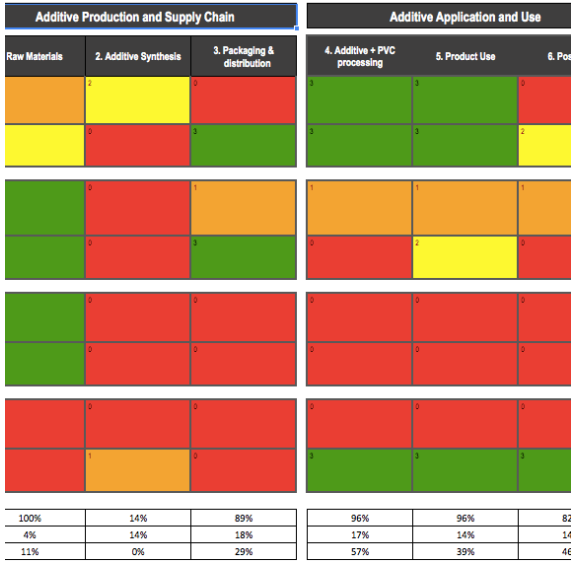
Additive Life Cycle Inventory | Raw Materials Acquisition | **Additive Synthesis** | Packaging & Distribution | Compou

Questionnaire summary	2	Question	Answer	Verified	Explain your a
System Condition 1	2.1.1	Are processing aids* free from metals, minerals and hydrocarbons that risk accumulating in nature (e.g. due to scarcity in nature such as with Cu, Ag, Sn, Cd, Hg, etc. or due dispersed use / disposal)?	No	☑	
	2.1.2	Are production bi-products, waste and emissions free from substances from the earth's crust that risk systematically increasing in concentrations in nature? (e.g. process emissions, heavy metals etc.)	Not applicable	☑	
	2.1.3	Are the production process and facilities powered using renewable energy?	Yes	☑	
	2.1.4	Are there targets and actions being taken to phase out use of metals, minerals and hydrocarbons that risk accumulating in nature during creation (i.e. through process improvements, switching process materials etc.)?	Not answered	☐	
	2.1.5	Are there targets and actions being taken to improve resource efficiency and achieve zero waste/emissions of metals / minerals / hydrocarbons in production?(e.g. through choosing waste free production technology, smart design, efficiency measures, waste handling /treatment/recycling/reuse, production management, etc.)	Not answered	☐	
	2.1.6	Are there targets and actions being taken to power the creation process using renewable energy?	Not answered	☐	

Overview

…rs in the assessment are shown below. To update answers, complete the sustainability assessment for each life cycle stage.

aterials	2 Additive Synthesis	3 Packaging & distribution	4 Additive + PVC processing	5
now	2.1.1 No	3.1.1 Not answered	4.1.1 Not applicable	5.1.1 Not
now	2.1.2 Not applicable	3.1.2 Not answered	4.1.2 Not applicable	5.1.2 Not
0	2.1.3 Yes 0	3.1.3 Not answered 3	4.1.3 Not applicable 0	5.1.3 Not
	2.1.4 Not answered	3.1.4 Not applicable	4.1.4 Not applicable	5.1.4 Not
	2.1.5 Not answered	3.1.5 Yes	4.1.5 Yes	5.1.5 Yes
	2.1.6 Not answered	3.1.6 Yes	4.1.6 Yes	5.1.6 Yes
0	2.1.7 Not answered 4	3.1.7 No 0	4.1.7 No 0	5.1.7 No
	2.2.1 Not answered	3.2.1 Yes	4.2.1 Yes	5.2.1 Yes
	2.2.2 Not answered	3.2.2 Don't know	4.2.2 Don't know	5.2.2 Dor
0	2.2.3 Not answered 3	3.2.3 No 0	4.2.3 No 0	5.2.3 No
	2.2.4 Not answered	3.2.4 Yes	4.2.4 Don't know	5.2.4 Yes
	2.2.5 Not answered	3.2.5 Yes	4.2.5 Don't know	5.2.5 Yes
	2.2.6 Not answered	3.2.6 Yes	4.2.6 Don't know	5.2.6 Dor
0	2.2.7 Not answered 4	3.2.7 Don't know 0	4.2.7 Don't know 0	5.2.7 Dor
	2.3.1 Not answered	3.3.1 Don't know	4.3.1 Don't know	5.3.1 Dor
	2.3.2 Not answered	3.3.2 Don't know	4.3.2 Don't know	5.3.2 Dor
0	2.3.3 Not answered 3	3.3.3 No 0	4.3.3 No 0	5.3.3 No
	2.3.4 Not answered	3.3.4 Don't know	4.3.4 Don't know	5.3.4 Dor
now	2.3.5 Not answered	3.3.5 Don't know	4.3.5 Don't know	5.3.5 Dor
	2.3.6 Not answered	3.3.6 Don't know	4.3.6 Don't know	5.3.6 Dor
0	2.3.7 Not answered 4	3.3.7 Don't know 0	4.3.7 Don't know 0	5.3.7 Dor
	2.4.1 Not answered	3.4.1 No	4.4.1 No	5.4.1 No
	2.4.2 Not answered	3.4.2 No	4.4.2 Don't know	5.4.2 Dor
	2.4.3 Not answered	3.4.3 No	4.4.3 Don't know	5.4.3 Dor
	2.4.4 Not answered	3.4.4 No	4.4.4 Not applicable	5.4.4 Not
	2.4.5 Not answered	3.4.5 No	4.4.5 Yes	5.4.5 Yes
	2.4.6 Not answered	3.4.6 No	4.4.6 Yes	5.4.6 Yes
0	2.4.7 Yes 3	3.4.7 No 0	4.4.7 Not answered 1	5.4.7 Not



Additive Production and Supply Chain			Additive Application and Use		
Raw Materials	2. Additive Synthesis	3. Packaging & distribution	4. Additive + PVC processing	5. Product Use	6. Pos
	2	0	3	3	0
	2	3	3	3	2
	0	1	1	1	1
	0	3	0	2	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	1	0	3	3	3
100%	14%	89%	96%	96%	82
4%	14%	18%	17%	14%	14
11%	0%	29%	57%	39%	46

Example of how colour-matrix is used for interpreting hotspots

		Additive Production and Supply Chain			Additive Application and Use			
Sustainability Principle	Focus Area	1. Raw Materials	2. Additive Synthesis	3. Packaging & distribution	4. Additive + PVC processing	5. Product Use	6. Post Use	
System Condition 1	Impacts	1	2	2	2	3	0	
	Management Practices	1	3	3	3	4	4	
System Condition 2	Impacts	2	2	2	2	2	0	
	Management Practices	3	4	4	3	4	4	
System Condition 3	Impacts	1	2	2	2	2	0	
	Management Practices	4	4	4	4	4	0	
System Condition 4	Impacts	3	3	3	2	3	3	
	Management Practices	4	4	4	4	4	4	
								Totals
Assessment Status	Completion status	100%	100%	100%	100%	100%	100%	100%
	Verified Answers	7%	11%	18%	4%	11%	14%	11%
	Knowledge gaps	14%	11%	7%	14%	7%	25%	13%

Colour key

3-4 yes / NA	Good performance
2 yes / NA	Some issues / progress
1 yes / NA	A range of issues to address
0 yes / NA	Significant issues to address

Additive Sustainability Footprint: Rationale and Pilot Evaluation of a Tool for Assessing the Sustainable Use of PVC Additives

Mark Everard[1] **Richard Blume**[2]
[1]*University of the West of England, Coldharbour Lane, Frenchay Campus, Bristol, BS16 1QY, UK*

[2]*The Natural Step, Swedenborgsgatan 2, 11848, Stockholm, Sweden*

PVC compounds contain additives necessary for processing and stability, and to modify the plastic's properties. The Europe-wide VinylPlus® voluntary commitment includes a challenge to make progress toward sustainable use of additives. Additive Sustainability Footprint (ASF) was developed to assess sustainable use of additives across the whole societal life cycles of finished PVC articles, taking a risk-based approach rather than simplistic hazard assessment. ASF addresses impacts across six life cycle assessment (LCA) stages established by ISO Standard 14040, using the four System Conditions (sustainability principles) developed by The Natural Step (TNS) covering social as well as environmental factors. For each LCA stage/System Condition combination, seven generically similar questions cover negative impacts (many covered by existing tools and regulations) but also the additive's positive contributions to the sustainability of finished articles. Positive contributions include ethical sourcing, longevity of service life, low maintenance inputs, and recyclability. Answers to questions determine a score, which can be combined across the life cycle and with other additives. Testing on a generic EU PVC window profile supported ASF development and demonstrated applicability and potential benefits including use for sensitivity analysis of alternative additives from different geopolitical regions or from recycled as opposed to virgin sources. J. VINYL ADDIT. TECHNOL., 26:196–208, 2020. © 2019 The Authors. *Journal of Vinyl and Additive Technology* published by Wiley Periodicals, Inc. on behalf of Society of Plastics Engineers.

INTRODUCTION

Schemes for assessment of chemical sustainability differ significantly in definitions of objective, interpretation, and scope, many focusing on intrinsic chemical properties and particularly potential hazard [1]. Regulatory mechanisms and management tools commonly focus purely on hazard reduction or elimination to secure environmental and human health, including the EU REACH [2] "Substances of Very High Concern"/"Candidate List," EU Waste Framework Directive [3], the 12 principles of Green Chemistry [4] and GreenScreen® [5]. Though serving some useful purposes, hazard-based classifications, such as that within EU REACH, overlook actual risks to human health or the environment when substances are included in products, potentially leading to undesirable consequences such as restrictions on use of safe products, substitution toward less safe products and disincentives to innovate [6].

Risk assessment integrates hazard with potential exposure [7], contextualizing assessment into use of the chemical. A risk-based assessment can, for example, link inherent chemical properties to acceptable dose, based on likelihood and severity of exposure. Even when classified as hazardous, the way in which a substance is deployed can justify acceptable (authorized) uses (REACH Art. 60, paragraph 2). For example, some potentially hazardous substances may be wholly consumed in enclosed technical production processes, or bonded in immobile forms within final products. This has significant implications for the potential for safe management of risks in specific contexts.

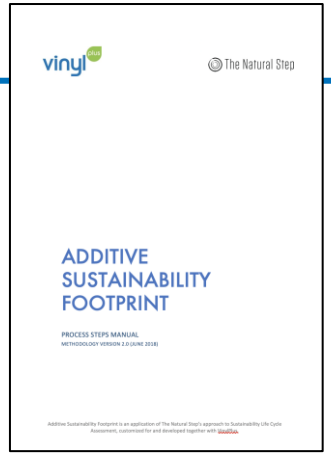
Both hazard and risk approaches founded largely on intrinsic chemical attributes also fail to account for, or else inconsistently address, wider sustainability issues related to sourcing, production, and application of chemicals, their interaction with products within which they may be used and their fate at or beyond end-of-life. It is increasingly recognized that a more holistic approach to the use and stewardship of chemicals throughout their entire societal life cycles is essential. For example, the term "sustainable chemistry", as distinct from "green chemistry" and "operational safe use" criteria [8], has been proposed by the German Federal Environment Agency [9] to address increased resource efficiency, safer and less polluting substances, innovations beyond sector borders, improved performance, and increased added value.

Life cycle assessment (LCA) measures some of these aspects of "sustainable chemistry", using well-established environmental impact categories such as global warming

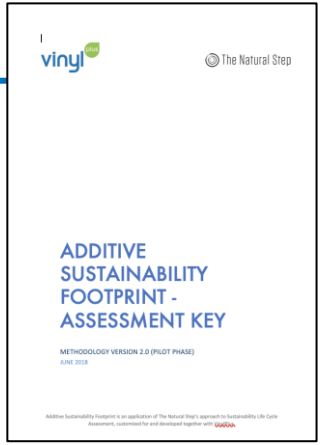
Correspondence to: M. Everard; e-mail: mark.everard@uwe.ac.uk
Contract grant sponsor: VinylPlus; contract grant number: N/A.
DOI 10.1002/vnl.21733
Published online in Wiley Online Library (wileyonlinelibrary.com).

3 Page Summary

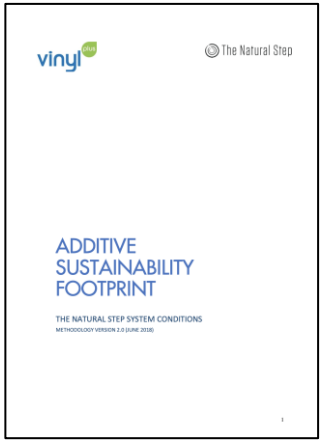
Process Manual



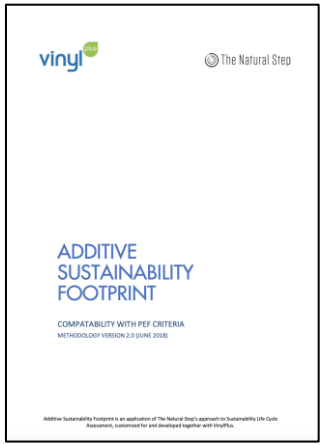
Assessment Key



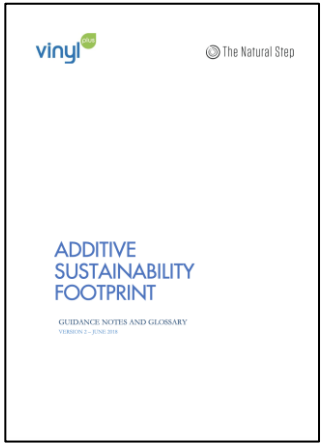
System Conditions



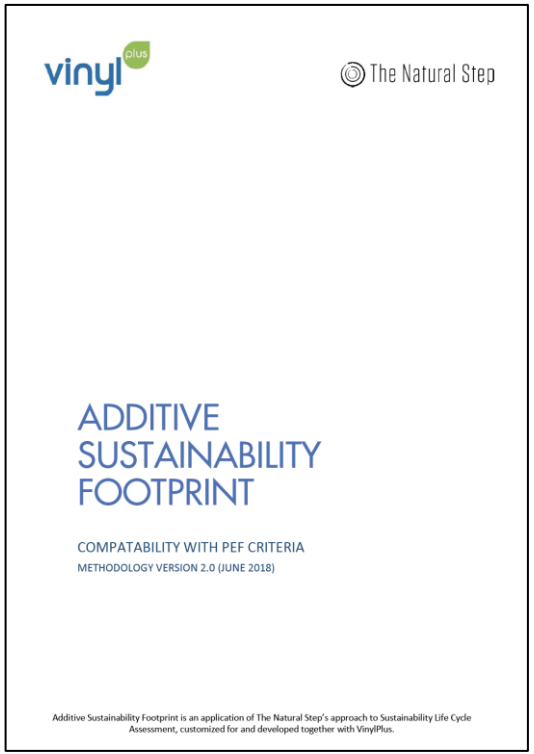
PEF Compatability



Glossary



What about PEF / EPD?



vinyl plus

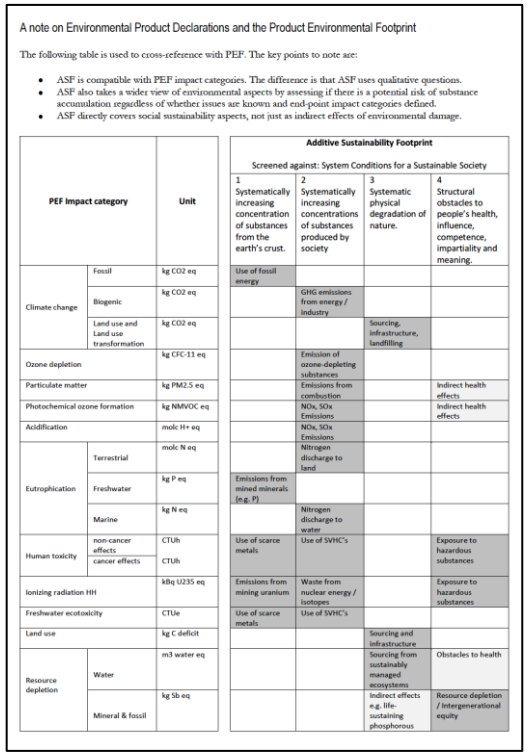
The Natural Step

ADDITIVE SUSTAINABILITY FOOTPRINT

COMPATABILITY WITH PEF CRITERIA

METHODOLOGY VERSION 2.0 (JUNE 2018)

Additive Sustainability Footprint is an application of The Natural Step's approach to Sustainability Life Cycle Assessment, customized for and developed together with VinylPlus.



A note on Environmental Product Declarations and the Product Environmental Footprint

The following table is used to cross-reference with PEF. The key points to note are:

- ASF is compatible with PEF impact categories. The difference is that ASF uses qualitative questions.
- ASF also takes a wider view of environmental aspects by assessing if there is a potential risk of substance accumulation regardless of whether issues are known and end-point impact categories defined.
- ASF directly covers social sustainability aspects, not just as indirect effects of environmental damage.

PEF Impact category		Unit	Additive Sustainability Footprint Screened against: System Conditions for a Sustainable Society 1 Systematically increasing concentration of substances from the earth's crust.	2 Systematically increasing concentrations of substances produced by society	3 Systematic physical degradation of nature.	4 Structural obstacles to people's health, influence, competence, impartiality and meaning.
Climate change	Fossil	kg CO2 eq	Use of fossil energy			
	Biogenic	kg CO2 eq		GHG emissions from energy / industry		
	Land use and Land use transformation	kg CO2 eq			Sourcing, infrastructure, landfilling	
Ozone depletion		kg CFC-11 eq		Emission of ozone-depleting substances		
Particulate matter		kg PM2.5 eq		Emissions from combustion		Indirect health effects
Photochemical ozone formation		kg NMVOC eq		NOx, SOx Emissions		Indirect health effects
Acidification		molc H+ eq		NOx, SOx Emissions		
Eutrophication	Terrestrial	molc N eq		Nitrogen discharge to land		
	Freshwater	kg P eq	Emissions from mined minerals (e.g. P)			
	Marine	kg N eq		Nitrogen discharge to water		
Human toxicity	non-cancer effects	CTUh	Use of scarce metals	Use of SVHC's		Exposure to hazardous substances
	cancer effects	CTUh				
Ionizing radiation HH		kBq U235 eq	Emissions from mining uranium	Waste from nuclear energy / isotopes		Exposure to hazardous substances
Freshwater ecotoxicity		CTUe	Use of scarce metals	Use of SVHC's		
Land use		kg C deficit			Sourcing and infrastructure	
Resource depletion	Water	m3 water eq			Sourcing from sustainably managed ecosystems	Obstacles to health
	Mineral & fossil	kg Sb eq			Indirect effects e.g. life-sustaining phosphorous	Resource depletion / Intergenerational equity

vinyl plus

3 For companies

ASF Generic Assessment

ASF applied in companies

A company Innovation programme for additive manufacturers

Delivered by:

The Natural Step

In collaboration with:

vinyl plus
COMMITTED TO SUSTAINABLE DEVELOPMENT

Purpose

- The overall purpose of this programme is to build the capacity of individuals and companies (additive manufacturers) to understand, assess and move toward more sustainable additive systems and company practices. The goal is that participating individuals and companies will be promoted as leading the way on additive sustainability through different forms of recognition.

- The basis for this programme is The Natural Step's science-based definition of sustainability, strategic framework and protocol for assessing product life cycles (Strategic Life Cycle Assessment).

- With the support of VinylPlus this approach has been customized into a tool for assessing PVC additives (Additive Sustainability Footprint), which will be used within the programme.

Programme objectives

- **Future-proofing business - To embed science-based principles of sustainability into company innovation processes and to connect it to overall company ambitions, strategies, policies and practices.**
- **SLCA / ASF Process Certification - To train and certify 2-3 company representatives in the proper use of The Natural Step's Strategic Life Cycle Assessment protocol, as applied to additives, i.e. Additive Sustainability Footprint (ASF).**
- **Third-Party Validation - To produce a third-party report by The Natural Step as evidence that company representatives have applied ASF to assess and move toward more sustainable use of additives at the company level*.**
- **Recognize pioneers - To profile participating individuals and companies as ambassadors for The Natural Step's Framework for Strategic Sustainable Development by supporting its application within companies.**

*Third Party validation that ASF has been properly applied is a pre-requisite to receive the VinylPlus Sustainability Certificate (VSC) for Additive Manufacturers (VSC). Other conditions also need to be met. The Natural Step is not responsible for the VSC but participation in the Leading Change for Sustainable Use of Additives programme will make it easier for companies to meet the audit requirements for the VSC.

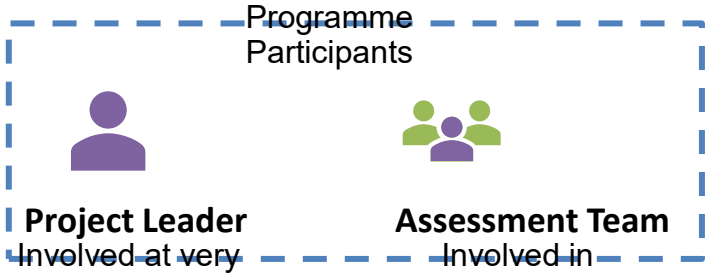
Overview

- Participants – Minimum of 7 Additive Manufacturers (companies) with 2-3 participants per company (i.e. cohort of approximately 20 sustainability leaders such as business executives, functional leaders / managers, and product and technology specialists).
- Content – Strategic sustainability methods and tools developed by The Natural Step (TNS Framework and Strategic Life Cycle Assessment, customized for PVC additives in collaboration with VinylPlus i.e. Additive Sustainability Footprint).
- Additive Self-Assessment – facilitated process to learn how to apply ASF on company's own additives.
- Key outcomes – Sustainability insight and foresight, ASF tool for internal use, licensed users, Third-Party Report and recommendations, pre-requisite for VinylPlus Sustainability Certificate for Additive Manufacturers.
- Professional coaching – Dedicated sustainability advisor from The Natural Step (per company).
- Delivery format – 100% remote and online. Content includes group webinars, company work sessions and coaching. Approximately 5-9FTE days for a Project Leader and 2-7 FTE days for Team members spread over approximately 4-5 months.

Participation

Leading Change for Sustainable Use of Additives is targeted toward both company leaders and those responsible for the development and delivery of additive systems. To participate, a company should nominate 2-3 participants who are able to either make decisions about, or gather insights on, additive systems and their sustainability issues across the life cycle.

One representative will fulfill the role of a Project Leader while the team will be involved in assessing additives or exploring innovation possibilities. In addition, it may be necessary to engage other internal / external stakeholders (e.g. customers / upstream suppliers) to gather information about the life cycle of additives and / or identify opportunities for co-innovation.



Individual learning

CAPABILITY AREA	PARTICIPANT LEARNING OBJECTIVES
UNDERSTAND 	1. Gain a clear understanding of sustainability based on sound science and systems thinking. 2. Explain the background, purpose, scope, needs and benefits of using a new industry-wide assessment methodology for sustainable use of additives.
ASSESS 	3. Facilitate / participate in a process to apply ASF to selected additives and product applications. 4. Relate impacts and lessons from use of ASF to company activities, business objectives and value chain collaboration.
INNOVATE 	5. Develop an innovation roadmap that addresses life cycle hotspots and areas for improvement in a business-driven manner. 6. Reflect on and develop plans for use of sustainability principles / ASF methodology within company practices.

Benefits of participating

- Competence development for key personnel who will learn how to evaluate performance in additive sustainability and guide innovation toward sustainable use of additives.
- Receive external advice and fresh insight on company sustainability efforts from The Natural Step's strategic advisors.
- Be recognized as a pioneer in applying a new methodology developed for industry-wide application.
- Demonstrate sustainability leadership and company commitment to industry sustainability targets.
- Help customers secure the VinylPlus product label by using the Third-Party Report to fulfil one of the requirements to become a supplier of choice (i.e. eligibility for a supplier Sustainability Certificate for Additive Manufacturers)*.
- Stay ahead of REACH regulations and prepare for EU's new chemical strategy for sustainability.
- Receive cost-effective support in a process involving both peers and individual company activities.

*The product label criteria will become stricter in future revisions and additive suppliers will need to demonstrate use of ASF.

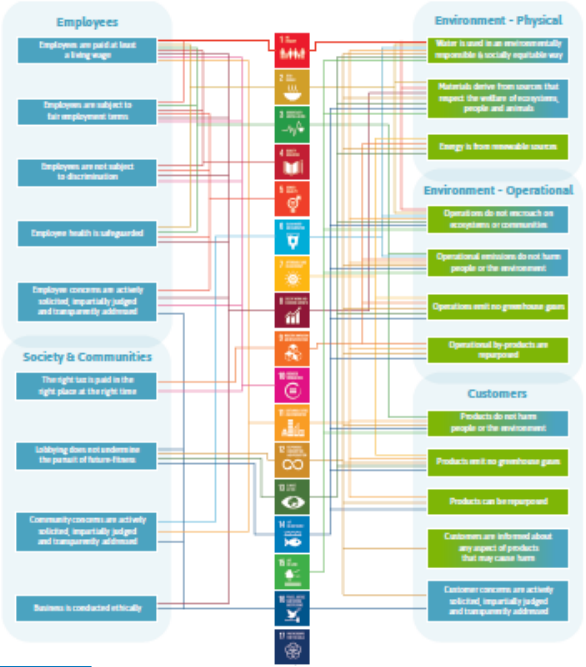
What's included

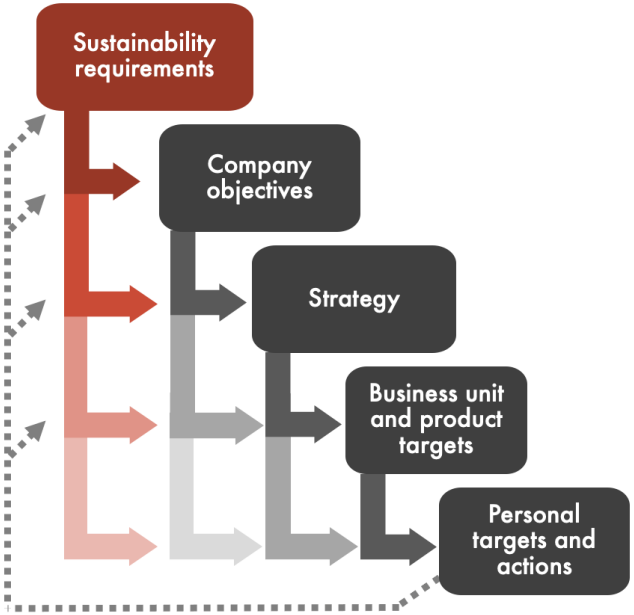
- Access to resources to build a shared understanding of sustainability within the company.
- Webinars and online sessions with peers and invited experts.
- Dedicated and confidential support from an external sustainability advisor to coach in the use of ASF.
- Licensed access for in-house company use of SLCA / ASF self-assessment process and tool.
- Access to pre-completed ASF Generic Assessment results (where available).
- Third Party Snapshot Report including recommendations from The Natural Step regarding the use of ASF.
- Official recognition by The Natural Step that the company has applied / is applying a holistic and strategic framework to navigate toward sustainability.

EXTERNAL ALIGNMENT

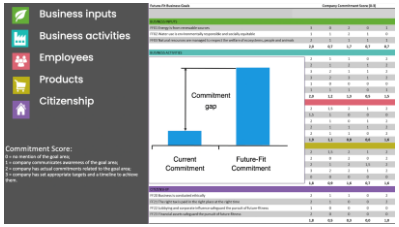
INTERNAL ALIGNMENT

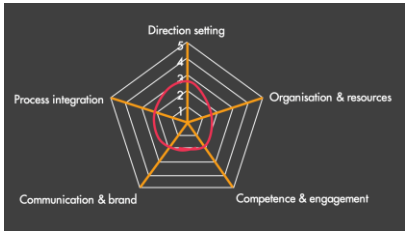
PERFORMANCE SCORECARDS

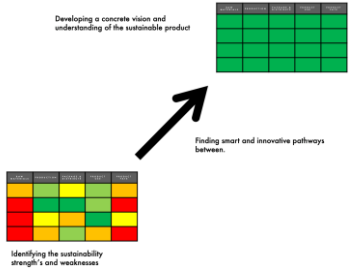




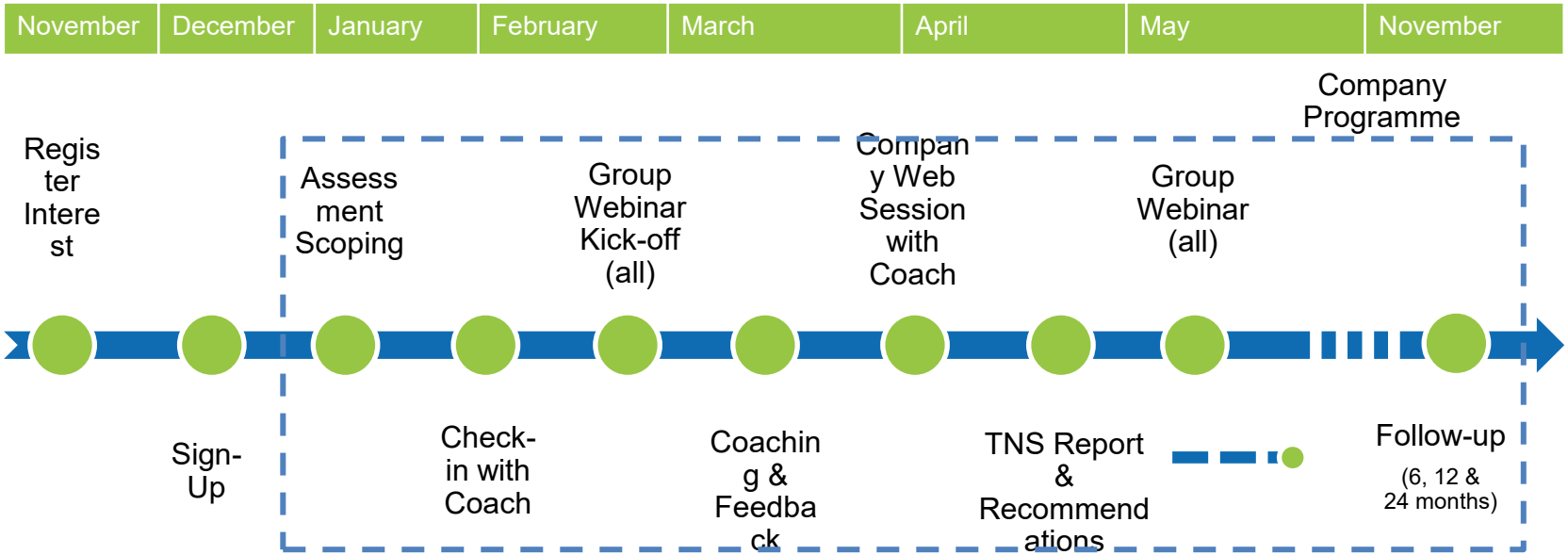
Toolkit for companies







(To be agreed with participants)



Additive Sustainability Footprint

Understand → Assess → Innovate

vinyl plus

VinylPlus®
Additive Sustainability Footprint

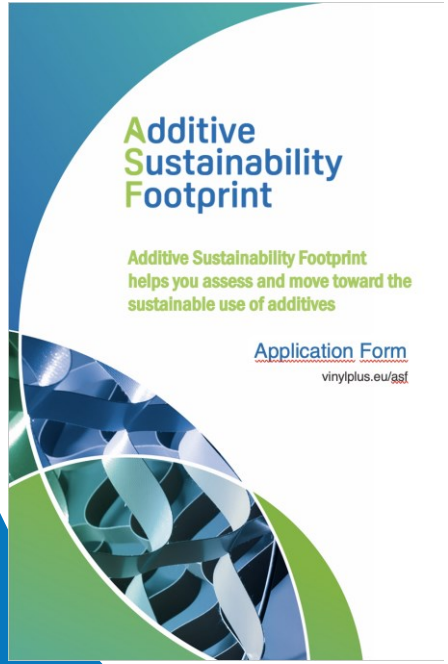
Readiness Assessment

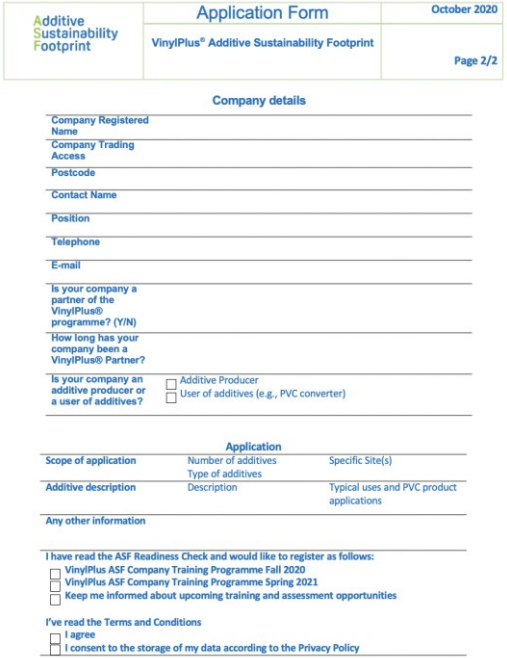
Additive
Sustainability
Footprint

Pre-requisites

To successfully apply ASF, company decision-makers will need to:

- ❑ Confirm participant availability and time commitment
- ❑ Ensure participants have working knowledge of additives
- ❑ Be willing to follow the timeline, once agreed.
- ❑ Be willing to self-assess.
- ❑ Commit to learning and improvement.
- ❑ Share information with TNS advisor (subject to non-disclosure agreement).
- ❑ Sign / abide by terms of use for SLCA / ASF.
- ❑ Pay Fee / be sponsored to participate in the Company Programme.





Additive Sustainability Footprint | Application Form | October 2020

VinylPlus® Additive Sustainability Footprint | Page 2/2

Company details

Company Registered Name	
Company Trading Access	
Postcode	
Contact Name	
Position	
Telephone	
E-mail	
Is your company a partner of the VinylPlus® programme? (Y/N)	
How long has your company been a VinylPlus® Partner?	
Is your company an additive producer or a user of additives?	☐ Additive Producer ☐ User of additives (e.g., PVC converter)

Application

Scope of application	Number of additives Type of additives	Specific Site(s)
Additive description	Description	Typical uses and PVC product applications
Any other information		

I have read the ASF Readiness Check and would like to register as follows:

- ☐ VinylPlus ASF Company Training Programme Fall 2020
- ☐ VinylPlus ASF Company Training Programme Spring 2021
- ☐ Keep me informed about upcoming training and assessment opportunities

I've read the Terms and Conditions

- ☐ I agree
- ☐ I consent to the storage of my data according to the Privacy Policy

Next steps

- Further information about Additive Sustainability Footprint is available at www.vinylplus.eu/asf
- General inquiries can be directed to VinylPlus
- An application form is also available from VinylPlus who will coordinate registrations with The Natural Step prior to programme commencement.

www.vinylplus.eu
info@vinylplus.eu
vinylplus_eu
vinylplus
vinylplus

Wrap up

Vincent Stone

Technical & Environmental Affairs
Senior Manager, VinylPlus®

Additive Sustainability Footprint Methodology

Wrap Up

- Thanks a lot for your active participation to this webinar!
- Questions unanswered today will be addressed ASAP by speakers
- Other questions? Please send them to info@vinylplus.eu!
- A post webinar survey will be organised by year end
- Interested to join an ASF Company Training Programme?

1. Fill in the Application Form (vinylplus.eu/asf)
2. Send Form back to info@vinylplus.eu

www.vinylplus.eu
info@vinylplus.eu
vinylplus_eu
vinylplus
vinylplus